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ABSTRACT

The health and environmental issues section of the proceedings includes the following 10 papers: "The Interplay of Journalistic and Scientific Conventions in Mass Communication about AIDS" (William F. Griswold, Jr. and Cathy Packer); "Refocusing Science News to Reach a Specialized Audience: AIDS Coverage, Mobilizing Information and Teen Magazines" (Kathleen L. Endres); "Network News Coverage of AIDS: A Thematic Analysis (Steven Konick and Steve M. Barkin); "Alcohol Advertising in a Public University Newspaper: An Ethical Response to a Legal Dilemma" (W. Robert Nowell III); Information Sources and Drug Abuse: A Test of Mutz's Model of Issue Perceptions and Their Political Consequences" (David Weaver and others); "Information Processing of News about Environmental Risk: An Exploratory Study" (Lee Wilkins); "Risk-Taking Predispositions: Concern and Information Seeking about Environmental and Health Risk Situations" (M. A. Ferguson and J. M. Valenti); "Fishing Paradise: Mass Communication, Culture, and Environmental Relationships in the Quetico-Superior Wilderness of Ontario and Minnesota" (David Backes); "Communicating Risks of Oil Spills to the Public" (Jinling Lee); and "Ideology and the Environment: U.S. Media and Deforestation in Brazilian Amazonia" (Jacob Bendix and Carol M. Liebler). (SR)

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The Interplay of Journalistic and Scientific Conventions in Mass Communication about AIDS

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The Interplay of Journalistic and Scientific Conventions in Mass Communication about AIDS

The phenomenon of acquired immune deficiency syndrome (AIDS) has posed perhaps the greatest public health communication challenge ever encountered. At one important level, the AIDS information campaign has been spectacularly successful. Surveys (e.g., Singer, Rogers, & Corcoran, 1987) demonstrate that awareness of AIDS among the American public has risen dramatically since 1981 and that very few adults remain ignorant of the existence of AIDS. Most of the respondents in these surveys cite mass communication media as the sources of their knowledge about AIDS, and researchers (e.g., Neuwirth & Dunwoody, 1989) confirm that mass communication is one important component in the process of behavioral change.

Despite this record of success, mass communication media have been regularly and heavily criticized for not doing a better job of communicating information about AIDS. In the beginning, the media were accused of ignoring the entire issue (Kramer, 1988). More recently, mass media have been accused of overstating the risk of AIDS among exclusively heterosexual men and women (Brecher, 1988). Scientists particularly charge that media messages fail to portray the complexity of the research process and the tentativeness of findings about AIDS (Dorfman, 1987).

These complaints are not the isolated grumblings of a few malcontents; they are examples of a widespread belief that mass media bear a responsibility to educate the public about health concerns so that individuals can make decisions for themselves about appropriate behavior. This belief has had an important impact on American public policy (Packer & Kenny, 1989). Both President Bush (Lynn, 1987) and the director of the federal Centers for Disease Control (Cimons, 1985) have made statements to the effect that the problem of AIDS would disappear if only the right information could be distributed to everyone in the population. By implication, this view suggests that if AIDS has not been eliminated, then it is the shortcomings of the media that are to blame, rather than the lack of federal funding of research and treatment programs.

A number of explanations have been advanced for these alleged media shortcomings, but most of them can be characterized as criticisms of the bravery, competence, or compassion of the journalists engaged in AIDS reporting. For example, Doug Gould, vice president for communication of Planned Parenthood, is quoted as saying the networks were reluctant to run ads for condoms because those making network programming decisions were "afraid of Jerry Falwell and the Roman Catholic bishops" (Dorfman, 1985, pp. 6-7). Roger Streitmatter (1984), director of the print journalism program at American University in Washington, D.C., writing in the publication of the Society of Professional Journalists, suggests that AIDS reporting should be done only by reporters with specialized training, assigned to permanent AIDS beats. Randy Shilts (1987), widely considered the dean of AIDS reporters in the United States, goes further, arguing that only reporters who are gay, as Shilts is, can appreciate the impact of AIDS on the gay community.

These journalist-based explanations are unconvincing in two respects. First, they are contradicted by a large body of evidence from mass communication studies (Shoemaker & Mayfield, 1987) indicating that individual characteristics of journalists have little impact on the content of an individual news organization's product, much less the press as an institution. Second, these explanations appear to ignore the role of the media in creating awareness of AIDS. It seems far-fetched to suggest that American journalists were good enough to transmit enough information to make everyone aware of AIDS, but, because they are generalists, non-gay, and fundamentalist-fearing, they cannot transmit whatever information the critics find lacking.

In this paper, we will suggest that much of the criticism of the media's performance in communicating about AIDS arises from a set of unrealistic expectations. The ability of the media to communicate medical-scientific information is constrained, we argue, by the structure of the social system in which medical science reporting takes place. This system, consisting of scientists, medical practitioners, journalists, and media publics, incorporates a set of social controls on information flows that accommodate the interests of each part of the system most of the time. However, the norms and conventions developed by journalists and by scientists within the system interact in such a way that critics are not likely to ever be fully satisfied.

This situation is not peculiar to AIDS communication; Dornan (1990) suggests that both the way medical-scientific reporting is done and the way it is criticized are functions of the structure of the medical-scientific-reporting system. We suggest that AIDS reporting is a particularly interesting phenomenon, however, because the urgency and severity of the AIDS epidemic have increased the public's expectations of the media and made the incompatibility of journalistic and scientific norms more obvious. There are signs that many in both the journalistic and scientific communities are attempting to change in response to criticism of the way AIDS information has been communicated, but we suggest that the changes that have been proposed so far are too few and too small to alter the system.

Before examining the specific strains arising from the AIDS phenomenon, we will briefly outline a social-structural approach to understanding the system of medical-scientific reporting and then discuss some of the conventions and norms of journalism and of science.

STRUCTURAL CONTEXT OF SCIENTIFIC INFORMATION FLOW

We take as a starting point a general theoretical approach laid out in mass communication literature by a number of writers, including most notably Tichenor, Donohue, and Olien (1980), Donohue, Tichenor, and Olien (1973), DeFleur and Ball-Rokeach (1982), and Turow (1984). This approach emphasizes the nature of the social system in which mass communication takes place as the major determinant of the structure and contents of mass media.

Social system theory generally conceives of any more or less stable social grouping, from a couple to a group of nations, as a collection of interdependent parts of sub-systems. One part of the system has power over another part to the extent that the second part depends on the first to provide essential goods or services. Each part uses its power to control the activities of all the other parts, at least to some extent, and each is in turn influenced by all of the others to some extent. Thus, any social system can be analyzed by studying the dependency patterns among the sub-systems and inferring the functions of particular parts of the system for other parts.

This theoretical approach suggests that the mass media, like every other sub-system in society, are at once the objects and the means of social control. Elites in every sub-system of society, such as the political system, the educational system, the religious system, and so on, try with varying degrees of success to influence the content and operations of the mass media in order to control the amount and types of information they communicate to and gather from other elites, who are their competitors for influence in the social system. The media in turn use their access to their audiences, who can influence all other sub-systems through voting and withholding financial patronage, to gain advantages such as favorable mailing rates and licensing monopolies.

We wish to focus here on the social system surrounding the mass communication of medical-scientific information. For analytical purposes, we define this system as consisting primarily of the media, researchers, medical practitioners, and the public. Under normal conditions, each of these parts contributes significantly to the maintenance of the whole system by meeting essential needs of other parts.

The scientific community, for instance, supplies a steady stream of new findings and theories touching on health issues. These findings are used by the medical community to produce new diagnosis and treatment procedures, which contribute to the public's health and maintain the medical community's image as the holder of unique expertise. New scientific findings are important to the mass media as the raw material of news reports.

The media primarily function to provide members of their audiences with information about what is happening in their environment and with explanations and interpretations of that information, both of which inform audience members' daily decision-making. The media also transmit their audience members' social heritage from one generation to the next and entertain them (Wright, 1975). All of these content functions are fulfilled in such a way that they maintain the legitimacy and prestige of the medical-scientific establishment. Nearly a century of reporting on major technical-scientific achievements has fostered the impression among the American public that science can solve any problem, given enough time and enough funding, and one of the important functions of routine science reporting is to maintain that impression (Dornan, 1990). In regard to reporting of medical issues, media portrayals also establish the notions that the medical community knows best what to do about health issues and that the audience member's task is merely to acquire enough information to know when to go to a doctor and which variety of specialist to consult.

We can compare this function of medical-scientific reporting with the dominant types of content in U.S. mass media -- political and economic information. It is essential to the maintenance of the political and economic systems that citizens have enough information to enable them to make decisions about how to vote and what to buy. The media fulfill these needs with relatively low levels of information embedded in oft-repeated messages that reinforce the legitimacy and expertise of business and political leaders (Gouldner, 1976). Even investigative reports that are often perceived as media attacks on politicians or business leaders are generally handled in such a way that the public is left with an impression that a few bad apples are responsible for the abuses and that those bad apples are being culled (Ettema & Glasser, 1987). Thus media are essentially reformist within the status quo because they depend heavily on the status quo for their own survival. And, to the extent that the public is content with present conditions, media audiences are satisfied with this approach.

Medical information is handled in the same way. The goal is to create awareness of conditions that would make individuals seek advice and treatment from the authorities, the established medical community. This level of awareness can be created with relatively small amounts of information. Audiences generally are satisfied with this approach, as they are with political and business reporting, because medicine is just one of a huge number of specialized areas. No one can know enough to be expert in all areas.

Overall, then, according to our structural model of medical-scientific mass communication, the media will routinely function as transmitter of information, but the type and volume of information will be controlled in ways that ensure that the scientific and medical communities will continue to be viewed as having special expertise and legitimate authority in regard to health issues.

CONVENTIONS OF MASS COMMUNICATION OF NEWS

Media acting in this system have developed a set of conventions defining what news is and how it is gathered and processed (Check, 1987). These conventions are functions of both the organizational imperatives of news work and the epistemology of journalism.

The most salient characteristic of media organization is the need to attract, again and again, a mass audience whose attention can be sold to advertisers in a cost-effective way, relative to other media competing for the attention of the same audience and the same advertising revenues. Among the conventions of news work arising from this organizational imperative are:

a. Routines and schedules -- Media must create new content regularly -- in some cases almost hourly. Because of the tyranny of the clock, journalists tend to emphasize timeliness in selecting what to report. In addition, they tend to develop repetitive patterns of activity, such as going to the same locations and asking questions of the same sources who have produced usable stories before. These news routines have the effect of making it difficult for new voices to be heard and of reinforcing the status quo.

b. Simplification and popularization -- Because of the need to attract a mass audience, media portrayals tend to be popularized and simplified treatments, even of very complex issues. In a media-rich society in which other channels of information and entertainment are always competing for the attention of the audience, making the reader or viewer work hard to understand complexity is inviting him or her to turn to a different message.

c. Dramatization -- The need to compete with other media also leads to playing up the entertainment aspects of a news report. Most often this takes the form of emphasizing any apparent conflict in a news report in order to make it more dramatic and emotionally engaging. Rather than an explanation of an event or issue, the report becomes literally a story -- a narrative with a hero, a villain, and a proper resolution.

d. Emphasis on breadth of impact -- Mass media, needing to attract mass audiences, emphasize those issues that may affect and thus interest the largest segments of the public, even if the potential impact on each member of that segment may be trivial. Issues that may have much more profound effects on smaller groups tend to receive less attention unless they are so unusual that their oddity conveys entertainment value or they contain elements that can be played for emotional appeal to large numbers.

Conventions of news work also have arisen from the epistemology of journalism, or the working definitions of what constitutes knowledge that are intrinsic to news as a form of communication (Phillips, 1977). An important point to be made about the epistemology of news is that journalists are not reflective about it. As Lett said, "Journalists have no objective, recognized and accepted standards for knowing what they know" (1986, p. 13). And they do not agonize over this lack of philosophical standards. Rather they adopt a pragmatic standard of believability.

Journalists generally distinguish between two types of statements that can be included in a news report: statements of fact and statements of opinion. The distinguishing feature is whether the audience will believe in the truth of the substantive claim made. Thus, journalists take a reportable statement of fact to be one that makes a claim about reality that has almost no likelihood of being challenged by a reader. In practice, these only include statements of what the reporter has observed personally ("It was raining yesterday.") or what an audience will accept as common wisdom ("Winters are cold.").

Statements of opinion are statements whose believability depends not on the substantive content of the claim, but on the credibility of the person making the claim. This means the criterion used in deciding whether an opinion is quotable is the authority of the person expressing the opinion.

But, as Lett observes,

> The problem with an epistemological appeal to authority, of course, is that the authority's knowledge is only as reliable as the authority's epistemological foundation. Without an independent means of assessing that foundation, journalists have no choice but to offer us the claims of competing authorities, without comment, and advise us to make our own choices (1986, p. 13).

This description matches what Check describes as the "political model of reporting," in which competing opinions are presented impartially and democratically (1987, p. 987). There is a threshold level of authority that a speaker must reach in order to have his or her opinion presented, but the threshold is low, and journalists usually have no means or incentive to distinguish among authorities who pass the threshold. Thus, one presidential candidate's opinion is just as authoritative as that of another candidate. However, because in any field there are likely to be more equally authoritative opinion holders than can be included in news reports, journalists use another set of standards to choose whom to quote. They adopt the standards of rhetoric, so the authority who is most eloquent, emphatic, and succinct is most quoted.

CONVENTIONS OF SCIENTIFIC COMMUNICATION

Science also has developed some unique conventions governing the dissemination of information (Burkett, 1986). Those conventions are functions of how scientific investigations are conducted and of the epistemology of science, although working scientists often are not particularly concerned about the epistemology of science, just as working journalists are not particularly concerned about the epistemology of journalism.

The foundation of scientific inquiry is the scientific, or experimental, method of proof. Using the scientific method, the investigating scientist observes the environment, theorizes about what has been observed, conducts controlled experiments to test those theories, and then subjects the results to criticism by his peers (Cantore, 1977).

Publication then, is an essential part of the scientific method, not merely a means of disseminating reports of the results of scientific inquiry. Whereas the mass media seek to gain the attention of an audience and thus earn advertising revenues, the primary motive for scientific publishing is to enable experts in the field to check the validity of reports of research findings.

The literature on the philosophy of science (e.g., Cantore, 1977) depicts science as a public experience. However, the public is comprised of the researcher's peers, not the general population. O'Connor describes scientific journals as places where "sections of the scientific community are talking to themselves" (1979, p. 128). The goal of that dialogue is to reach consensus among a community of inquirers (Richards, 1987). This consensus is reached, not through an orderly process, but through a series of debates that often appear chaotic and unfocused.

One survey of scientists (Burkett, 1986) reveals that only a little more than half thought it was important to make their knowledge available to the public. Dunwoody (1986) observes that while journalists need information from scientists, scientists rarely need what journalists have to offer. "Traditionally, public visibility has brought with it no cachet for scientists," she said, adding that some change is taking place and a few scientists are now willing to serve as media sources (p. 14). Describing the conclusions of a lengthy study of scholarly scientific publishing, DeBakey (1976) says it also may not always be important for journalists to share their knowledge with the public. In fact, it may be important for them to delay publication. She says,

> We recognize the "public's right to know," but believe that the phrase subsumes a responsibility on the part of scientists, physicians, editors, publishers, and science writers to make certain that information disseminated

> through the scientific and lay news media is accurate and valid. Journalists should guard against premature reporting of information that may not be scientifically valid and that may therefore mislead or be harmful to society. . . . a journalist often better serves his readers by delaying publication until the substance of the report has passed the critical scientific analysis of peer review (p. 28).

What constitutes reportable knowledge in scientific publishing? The epistemological characteristics of science are observability, measurability, and objectivity. Therefore reportable knowledge consists of statements of reality and theories that explain those statements. Reality is observable through the senses, either directly or by means of instruments, and measurable and objective (Cantore, 1977). Publication of statements of reality invites others to perceive, study, and test those statements. A theory explicates a set of conditional correlations sufficient to allow reliable prediction of the outcome of observational events and a set of concepts sufficient to explain the correlations causally (Gale, 1979). Publication of theories invites elaboration and clarification of those theories.

The conventions of scientific publishing clearly reflect its integral role in the scientific method of inquiry. For example, the convention that represents the first step in validating research results and that perhaps most clearly distinguishes scholarly scientific communication from mass media communication is peer review. Peer review has been around for more than 300 years and is used almost universally by the 20,000 biomedical journals and 100,000 science journals currently publishing (Lock, 1986). Ziman proclaimed in his book Public Knowledge (1968): "The referee is the lynchpin about which the whole business of Science is pivoted" (p. 111).

Peer review procedures vary from journal to journal. The editor can make an independent decision to accept or reject an article, particularly if the article is in the editor's specialty. Most editors use two outside reviewers for each article and call on a third if the first two disagree. A journal editor, often in conference with other editors, then considers the written reviews that have been submitted and makes the final decision on publication.

Peer review is widely considered crucial to scientific progress (Patterson & Bailar, 1985). It is a system designed to help the scientific community accomplish its goal of producing scientific knowledge and validating the product. It helps journal editors decide what is new, true, and important (DeBakey, 1976). It "screens out reports of investigations that were poorly conceived, poorly designed, poorly executed, trivial, unoriginal, or uninterpretable" (Bailar & Patterson, 1985, p. 654). Peer review assures research results are presented clearly and in appropriate detail for replication (Patterson & Bailar, 1985), directs papers to the appropriate journal through rejection and encouragement of resubmission elsewhere, and helps editors who increasingly "feel unable to judge the quality of highly specialist papers without expert help" (Lock, 1986, p. 21).

Critics of peer review (e.g., Ingelfinger, 1974; Lock, 1986; and Wilson, 1977), however, argue that the system is prone to reviewer bias, occasionally results in rejection of an article that represents an important scientific advance, may violate confidentiality of research results, and creates lengthy delays between submission of articles and publication. There also is some evidence that peer review does not produce much better than a chance result of acceptance or rejection (Ingelfinger, 1974). The seriousness of these concerns is reflected in the fact that they were discussed by 250 editors of biomedical journals who met in Chicago in 1989 for the first international meeting on peer review. A Washington Post reporter who covered the meeting observed that the public's increased appetite for news about medicine--including AIDS--and the increased competition among scientists for government research money have raised new and urgent questions about the system of peer review used by biomedical journals (Specter, 1989).

The delay in publication is characterized in the medical literature as one of the "costs" of peer review (Patterson & Bailar, 1985). Former New England Journal of Medicine editor Franz J. Ingelfinger said peer review "gobbles time in huge, unchewed mouthfuls" (1974, p. 690). He said a good review requires several hours of work and that some reviewers take 8, 16, or even 32 weeks to return a manuscript. One study of medical publishing (Roland & Kirkpatrick, 1975) found that 9.2 months usually elapse between the journal's receipt of an article and publication, including 2.4 months spent on revisions. Another study (Mathie & Jaffe, 1987) reported a range of 4 to 17 months from article submission to publication.

In telephone interviews conducted in 1989 as part of this research, representatives of a dozen biomedical journals were queried about publication delays and expedited review procedures. This survey indicated that the lag time between a journal's receipt of an article and publication was between two and eight months if time-consuming revisions were not required. The average time between submission and publication was about six months. Half of the journals queried said they have procedures for expedited review, many of which are new. One journal reported never having used its procedure. Expedited review might cut the time from submission to publication in half, according to this survey.

Another significant convention of scientific publishing is what has come to be known as the Ingelfinger rule. First adopted by Ingelfinger at the New England Journal of Medicine in 1970 and now widely enforced by other journals, the rule warns that the journal will not publish an article the contents of which have been previously reported elsewhere. This rule allows presentation of papers at meetings and distribution of abstracts. However, it forbids distribution of copies of papers presented at meetings or of slides or charts or lengthy interviews with reporters about research findings. The survey of biomedical journals conducted for this study revealed that two of the 12 queried explicitly followed the Ingelfinger rule. At some journals, however, the rules are unclear, and much is left to the discretion of the editor.

Goodell, while describing the Ingelfinger rule as a "form of scientific censorship" (1977, p. 130), says it serves well the process of scientific inquiry:

> This publish-in-a-journal-or-perish rule protects the system of quality control in science. Before publication, a journal's referees judge the acceptability of a manuscript for publication. After publication, an invisible college of colleagues reviews and evaluates the research, and censors inaccurate findings before they can mislead future researchers or the public. If the discovery appears first in the popular press, the discoverer's colleagues cannot perform this function, since the popular article does not have enough detail for them to judge its merits. Reporters cannot check up on a story as easily, because

> their sources have no previously published technical articles on the subject that they can use for reference. The journal system also discourages charlatans who might make unfounded announcements in the press for publicity. . . . (pp. 130-131).

Critics of the Ingelfinger rule charge that it "can bottle up information doctors need immediately" (Burkett, 1986, p. 114). However, scientists obey the Ingelfinger rule because having their research published in a reputable journal is their first priority. Publication results in promotion, tenure, research grants, and awards. Increasing public knowledge about science confers few material rewards.

Despite rules against prior publication, however, many of the editors attending the 1989 peer review meeting expressed concerns about the reportedly widespread practice of scientists publishing the same report in more or less similar form in more that one biomedical journal. The editor of the Archives of Head and Neck Surgery, Byron J. Baily, reported that he examined the work of 1,000 authors who published nearly 40,000 articles in his journal between 1970 and 1980 and found that one-quarter of them had published nearly identical articles elsewhere. He called the practice dishonest and a violation of copyright law (Specter, 1989).

When one views medical publishing as a part of the scientific method of inquiry, the slow pace of medical publishing caused by the publishing conventions described above does not present itself as a serious problem but rather as an unavoidable and even valuable quality of the inquiry. In his discussion of scientific epistemology, Cantore says there always is a "great delay in time between the first bright idea and science as a mature reality. . . . Indeed, if discovery issues only from both observation and theorization, it is unavoidable that science will require a long time of development before achieving maturity" (1977, pp. 55-56). Also, the slow pace seems wiser than rushing research results into print. The slow peer review system meets the scientific community's need to verify research results.

In addition, there is some evidence that the slow pace of scientific publishing does not, in fact, delay dissemination of important, timely research information to members of the scientific community. To meet its needs for timely information, the scientific community has developed informal communication systems, what de Solla Price (1981) has called invisible colleges. Invisible colleges are elite groups of scientists in the same field who communicate informally through letters, assessing articles for publication, conversations, associations with referees, workshops, and discussions at meetings. One study (Wolf, 1975) found that 61% of scientists in a given specialty know about research findings in their specialty before they are published. Thirteen percent sometimes know. Richards observed in 1987, "The role of the research paper has already become secondary in the most dynamic areas because the delay in publication (which can be as long as two years) ensures that when it does appear, the paper can do no more than confirm what the members of the elite circle already know" (p. 101).

However, Stephen Lock, editor of the British Medical Journal, cautions against overestimating the significance of the invisible college as a communication vehicle. He said that "most invisible colleges are made up of super-specialists, and scientists working elsewhere in the discipline may not know of these findings. For this reason, publication is vital in keeping them in touch with the important developments and enabling them to assess in detail the claims made" (1986, p. 12).

The points made here about the conventions of scientific publishing fit well into the structural model of medical-scientific communication outlined earlier in this paper. The Ingelfinger rule and the requirement of peer review can be seen as instances of social control of information by the scientific community. The information is controlled in the interest of maintaining the power of the scientific establishment by not allowing publication of claims that may embarrass the whole scientific community and destroy the American public's belief in science as the only legitimate means of producing new knowledge that can be applied to solving practical problems.

AIDS, SCIENCE, AND THE MASS MEDIA

We will next seek to show that many of the strongest criticisms of the way the media have performed in regard to AIDS can be explained by reference to the interaction of journalists applying their publishing conventions with scientists applying their conventions. In some cases the two sets of conventions clashed, while in others they acted in a parallel fashion, each exacerbating the problems of the other.

A case in point is the frequently cited delay in press coverage of the new epidemic of sexually transmitted disease now known as AIDS. Although the Centers for Disease Control (CDC) had set up a task force on Kaposi's Sarcoma and opportunistic infections in mid-1981 and its leader had submitted a request for $833,000 to begin research by the end of that year, it was 1983 before substantial numbers of stories about the disease appeared in the nation's press. The New York Times, for instance, ran only six articles on the new illness in 1981 and 1982 (Baker, 1986). This delay of nearly 18 months before AIDS become big news is particularly interesting when compared with the coverage of Legionnaire's disease and toxic shock syndrome, both of which received prompt and intense coverage.

Most of the criticisms of the press's tardiness in reporting AIDS widely have blamed it on homophobia on the part of journalists and their audiences. Check, for instance, said, "Homophobia had the negative effect of holding down coverage of AIDS for more than a year in the 'straight' press" (1987, p. 990). There is no doubt that some in the press were fearful of homosexuals, but if it was homophobia that prevented AIDS coverage, how are we to account for the sudden upturn in reporting in 1983? Surely the homophobics among the press and the public did not have a sudden, mass conversion to benign attitudes toward homosexuals.

Don Berreth, director of the CDC's Office of Public Affairs, suggests that AIDS became newsworthy after Dr. Anthony Fauci, director of the National Institute for Allergic and Infectious Diseases, wrote in the May 5, 1983 edition of the Journal of American Medical Association that AIDS might be transmitted by "routine close contact" (p. 2375). According to data compiled by Berreth on news coverage of AIDS, the number of news media reports catalogued by the NEXIS database jumped from 179 in the first quarter of 1983, before Fauci's statement, to 595 in the second quarter (D. Berreth, personal communication, October 1988).

The import of Fauci's remark, of course, was that AIDS was no longer a concern of vital importance to relatively small groups of homosexuals, IV drug users, and hemophiliacs--groups that are viewed as aberrant or freakish and for which the general public usually shows little concern. By expanding the apparent breadth of impact of AIDS, Fauci had changed it into a newsworthy story -- that is, one that had the potential to affect everyone and therefore was capable of attracting a mass audience.

The conventions of scientific publishing also contributed to delays in disseminating information about AIDS. Shilts reports a conversation that Dr. Michael Gottlieb had with an editor at the New England Journal of Medicine in April 1981, just after Gottlieb became the first person to determine that an epidemic of unusual illness was striking gay men:

> "I've got something here that's bigger than Legionnaire's," he said. "What's the shortest time between submission and publication?"
>
> The editor explained that it would take three months to send the story around to a panel of expert reviewers who would make sure that it was scientifically sound. There would be another delay between the time the review was finished and the publication date. . . . If there was any leak to the popular press about the research, the journal would pull the story from its pages (1987, p. 63).

A New York doctor also reportedly told CDC investigator Mary Guinan in June 1981 about cases of an unusual venereal disease he had been treating. "He hadn't told anyone about the cases, however, because he had written a paper that was under submission at a medical journal," according to Shilts (1987, p. 72). Also, a government cancer researcher refused to present his research at a 1983 National Institutes of Health symposium on the cause of AIDS because his research was not yet published and reporters were in the audience, according to Russell (1986).

In 1986 several physicians (Rupp; Rosenberg, Schneider, & Cohen) wrote to Otolaryngology -- Head and Neck Surgery to complain about that journal's delay in publishing AIDS research findings. In a published letter to the editor of the journal, one physician (Rupp, 1986) observed that the lapse of a year between submission of one particular article and its publication caused the article to be outdated before it appeared in print. Specifically, he said references to the number of reported cases of AIDS, the inclusion of Haitians as a high-risk group, and the statement that the cause of AIDS is unknown were erroneous by the time of publication. He concluded, "Because of the fast-changing nature of the knowledge of this disease, I would urge that your journal expedite the review, acceptance and publication of good articles so that they may reach our colleagues before the information is out-of-date" (p. 255). The journal editor replied that while the journal will continue to try to be timely, "a peer-reviewed journal probably cannot place manuscript on its readers' desks faster than 6 months after submission" (Pearson, 1986, p. 256).

Furthermore, Burkett (1986) blames the "rigidities of the scientific information system" for delaying for several years the recognition that children were vulnerable to AIDS. He says Dr. Larry Bernstein of the Albert Einstein College of Medicine told a science writer that in 1981 he and other doctors tried to persuade editors of the journal of the American Academy of Pediatrics that since 1978 they had seen two or three more children each week with AIDS symptoms. Bernstein said the editors rejected the proposed report because they believed AIDS to be male homosexual disease.

Thus, the media's need to cater to mass audiences and the need for the scientific community to prevent premature publication of unvalidated claims combined to slow the growth of AIDS as a major topic of media attention. Berreth's data on AIDS media coverage show only one other increase of the same magnitude as that caused by Fauci's article. That jump, from 566 stories in the second quarter of 1985 to 1,744 in the third quarter, was precipitated by the announcement that actor Rock Hudson had AIDS. Check comments: "What is happening here is clearly not related to any medical event. It is a Hollywood star event, like Steve McQueen going to Mexico to get Laetrile" (1987, pp. 997-998).

Other persistent criticisms of media reporting of the AIDS issue involve the handling of authorities. They include criticism of the use of single sources, of the acceptance of "official lines" from prestigious sources, and of the willingness of the press to quote scientists with controversial and colorful opinions. In several respects, these criticisms point out the differences between the publishing conventions of journalists and scientists.

The problem of single-source reporting, according to Check, ". . . arises from accepting statements and interpretations by a single perceived authority rather than realizing that where preliminary data and complex issues are involved, experts may be influenced by their own biases" (1987, p. 990). From the viewpoint of the "political model" of reporting, however, any scientist is as authoritative as another, so nothing is gained by quoting another scientist, and what is lost is the simplicity and definiteness that a single source allows.

Goodell has pointed out the tendency of reporters "to use what is readily available from established scientific spokesmen without further investigation" (1981, p. 1). In addition, Shepherd (1981) has documented a pattern of selecting sources who are not the scientists researching a particular area but the administrators of government agencies sponsoring or using the research. An example of these tendencies in AIDS reporting is an article by Robert Bazell in The New Republic in 1983, which quoted a Haitian government official who said that Haitians have AIDS largely because of homosexual prostitution. Neither the researchers who did the study on which the official's claim was based nor any other source was quoted.

Another journalistic convention is the use of opinions from scientists who may be less expert than others according to the standards of other scientists, but who are more quotable to journalists because of the way they make their opinions known. Check cites as an example the frequent appearances in the press of Dr. William Haseltine, a molecular biologist at the Harvard School of Public Health, whose statements often were "vivid, articulate and literate" -- and often contradicted the consensus of expert opinion, as when he appeared on a television show late in 1985 and argued that anal intercourse is not a risk factor for AIDS (1987, pp. 993-994). Haseltine met the rhetorical standard of authority the press applied but not the standards of the scientific community.

This is an example of the way the scientific community's attempts to control information flow have backfired and had the unforeseen consequence of undermining the public's confidence in science. As Dr. James Curran of the CDC told Check, "Haseltine will say something different from the ex officio people and he would accuse us of underestimating the problem. That's the whole issue of disinformation. The public hears all these different things and they think that nobody knows anything" (Check, 1987, p. 994). Dr. Walter Dowdle, CDC deputy director for AIDS, echoed Curran's remarks in a publication of the Scientists' Institute for Public Information: "'Experts underestimated' or 'Experts overestimated. . . .' A lead like this really destroys the credibility of all experts" (Dowdle, 1988, p. 6).

The prominence of vocal and articulate unofficial sources with viewpoints that often contradict the consensus view may have had the perverse effect of undermining the legitimacy of science by appearing to support charges of cover-ups and conspiracies. A case in point is the coverage given to the claims of Drs. Mark Whiteside and Carolyn McLeod of the Institute for Tropical Medicine in Miami. Many press reports have repeated their claims that mosquitoes may be transmitting AIDS and that the CDC is covering up information about means of transmission (Conant, 1985).

This case illustrates the application of the journalistic convention of dramatization. From the epistemological stance of the scientist, Whiteside and McLeod's statements can be viewed as alternate interpretations of research findings, which are always subject to counter-explanations. Disagreements of this sort are integral to the process of validating and elaborating statements of reality and theories in science, and the review process would judge the worth of their ideas before they are published in science journals. Because of the need to attract an audience, however, and because the disorderly and chaotic nature of scientific advances does not fit the political model of reporting in which there is always a president or prime minister or mayor to make a final, definitive declaration, journalists tend to perceive theoretical disagreements as dramatic interpersonal conflicts. And scientists, with their own conventions discouraging publicity in the popular press, are unlikely to step forward with denunciations of work not reported through the normal scientific process.

Scott (1987) suggests media reporting of conflicting expert opinions, which confuse the public, are unavoidable while AIDS research is in a stage of "messy confusion" (p. 50). He explains,

> Throughout the development of the AIDS story, the "experts" have repeatedly been called upon to keep us all informed; but a look at some of their pronouncements reveals how fallible expert opinion can be while a branch of science is in the phase of active development. This fallibility is hardly surprising and perfectly understandable. The history of science should convince us that for every theory that has been confirmed many more have been dismissed. . . . Scientists in action are more likely to be wrong than to be right (p. 50).

Scott says that while the scientific-medical community blames the media for much of the "confusion and muddle and panic" about AIDS, the media usually are only following the lead of the experts (p. 52).

CHALLENGES TO THE MEDICAL-SCIENCE COMMUNICATION SYSTEM

Among the consequences of the way the conventions of journalism and science have interacted in regard to the AIDS issue may have been a weakening of the reverent attitudes toward science and medicine that much of the public held before the AIDS crisis. An early indication of this was the establishment, mostly by gay groups, of newsletters and databanks for people with AIDS and those infected with HIV to exchange information on possible treatments not offered by doctors (Altman, 1986). Another example is the way an early test of azydothymidine (AZT) was compromised by experimental subjects who shared doses in order to ensure that everyone in the trial got access to some of the experimental drug (Melton, Levine, Koochner, Rosenthal, & Thompson, 1988). A final example is the demonstration in Rockville, MD, on October 11, 1988, in which hundreds of protesters blocked entrances to the headquarters of the U.S. Food and Drug Administration to dramatize their demands for easier access to experimental drugs ("AIDS Rally," 1988).

All of these point to a change in attitude toward science and medicine from a decade ago (Beveridge & Rudell, 1988). Rather than submit to the processes of science and medicine as they exist, significant numbers of Americans are demanding that the system change to meet the needs of actual or potential AIDS victims. At the same time, both the medical-scientific community and the public are expressing dissatisfaction with the performance of the mass media.

There are indications that efforts are being made to change the conventions of medical science. For instance, a publication committee of the clinical treatment units authorized by the National Institutes of Health to conduct clinical trials of possible drug treatments for AIDS adopted a policy in September 1988 that recognizes the urgency of publication of findings and sets as a goal expeditious review and publication (S. Hecker, personal communication, October 6, 1988). A small number of journals have had for some time or have recently adopted expedited publication procedures for articles with pressing public health safety implications (Springer, 1986; Soffer, 1988). However, even with expedited review the lag time between submission and publication is two to three months. Changes such as these, which were prompted largely by public pressure for information about AIDS, have come slowly and seem unlikely to be enough to allay all the criticism.

The news media also are taking steps to meet criticism of their reporting on AIDS. For instance, the Poynter Institute for Media Studies held a two-day seminar in February 1988 on the media and AIDS, and a consensus was reached that change is needed in AIDS coverage (Kramer, 1988). However, there was no consensus on what change was needed. Suggestions included training writers, forming teams of reporters, being more sensitive toward people with AIDS, and even a call from one veteran science reporter to "write less about AIDS, but more comprehensively" (Kramer, 1988, p. 11).

Based on a structural perspective toward the system of mass communication of medical-scientific information, we conclude that efforts to speed up scientific publishing and journalistic improvement programs, such as efforts to educate science writers about how research is done, are likely to have little effect on the system as a whole. The journalistic and scientific communities are unlikely to develop a strong interest in radically changing their respective publishing conventions unless the underlying structure of the system changes. At this time, the journalistic and scientific publishing conventions meet most of the needs of those two communities. Working journalists and scientists, who are not particularly reflective about these matters anyway, are unlikely to feel compelled to fix what for them already works.

A change in the underlying structural system sufficient to prompt substantive changes in publishing conventions and journalistic and scientific epistemologies probably would have to be something on the scale of a major shift in the way the media are funded so they no longer need to attract mass audiences. Or it might require the abandonment of scholarly publication, with its requirement of peer review, as a part of the scientific method of inquiry. Neither possibility seems at all likely.

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Refocusing Science News to Reach a Specialized Audience:

AIDS Coverage, Mobilizing Information and Teen Magazines

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Refocusing Science News to Reach a Specialized Audience: AIDS Coverage, Mobilizing Information and Teen Magazines

The medical story of the 1980s was Acquired Immunodeficiency Syndrome (AIDS). The decade opened with only a smattering of coverage. But, as the infection spread throughout the United States, the number of stories increased.[1] Reporters for newspapers and TV programs became the bridge between researchers and the general public.[2] Sometimes, their reports promised hope with any number of "promising developments."[3] Other times, however, the stories cast a pessimistic shadow over the estimated one and a half million to three million Americans already infected with the AIDS virus.[4] Pessimistic or optimistic, the news reports did reach the groups most at risk--homosexuals and intravenous drug abusers--with up-to-date information about this deadly disease.[5]

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[1] David Kupelian et al. "The Battle over AIDS: Disease Control vs. Hysteria," New Dimensions, March 1990, p. 20.

[2] This does not necessarily mean that the quality of these reports was universally high. Many publications have emphasized the uneven and often sensationalized character of these stories. See, for example, "Sins of Omission," Newsweek, Sept. 23, 1985, p. 24; "The Politics of Aids," The New Republic, Nov. 4, 1985, p.ll; "AFRAIDS," The New Republic, Oct. 14, 1985, p. 7. David Kupelian et al. "The Battle over Aids: Disease Control vs. Hysteria," New Dimensions, March 1990, p. 20.

[3] See, for example, New York Times, July 14 and Aug. 4, 1989. Washington Post, Dec. 6 and 8, 1989.

[4] See, for example, Washington Post, Dec. 31, 1989. New York Times, Aug. 7 and 20, 1989. C. Everett Koop, "The Health Care Mess," Newsweek, Aug. 28, 1989, p.10.

[5] Buck Harris and Dr. William Keck, "Viewpoints of the AIDS Story," Panel Discussion, Women in Communication Inc., Kent State University, April 29, 1986, as cited in Stanley Wearden, "Extent of Mobilizing Information in Front-Page Newspaper Stories about AIDS," paper presented to the Midwest

These reports, however, seldom reached one group that has just been designated "at risk" in the AIDS epidemic. Individuals in this group have the lowest rate of newspaper readership--and watch the least amount of television each night.[6] Individuals in this group, say health officials, are woefully ill-informed about AIDS, yet sexually active.[7] The new "at risk" group are teenagers.[8]

A report by the Center for Disease Control illustrated the reasons for such a designation. Almost 5,000 teens were tested to be HIV-positive.[9] Of these, 39 percent of the infected teen girls reported that they had contracted the virus during heterosexual intercourse. Unprotected sexual experimentation among teens also helped explain other statistics. On 19 college campuses, two out of every 1,000 students were found to be HIV-positive. Since the AIDS virus can be carried in the body for a number of years before the individual displays any symptoms, many of these college students may have been infected in their high school years.[10] Such were not isolated instances; the Center for Disease Control also found many of the AIDS sufferers in their 20s (one fifth of all AIDS cases) had been infected in their teen years.[11]

Conference on the Social Implications of AIDS, Illinois State University, Normal, Ill. October 1988.

[6] Shirley Biagi, "Where have all the readers gone?" Media/Impact/*Update*, p. 3. Bryce W. Rucker, "Magazines and Teenage Reading Skills: Two Controlled Field Experiments," Journalism Quarterly, Vol. 59: No. 1 (Spring 1982), p. 29.

[7] "Teenagers and AIDS," American Red Cross brochure, 1988. Akron Beacon Journal, Feb. 14, 1990.

[8] New York Times, Oct. 8, 1989 and Dec. 1, 1989.

[9] Linn Ullman, "Voices: Time to Talk," Seventeen, September 1989, p. 112.

[10] Elizabeth Tener, "Good Girls Get AIDS," YM, January 1990, p. 81.

[11] Elizabeth Karlsberg, "AIDS: Face Fears with New Facts," 'Teen Magazine, September 1989, p. 38.

These findings became even more serious when linked with teen attitudes about their futures. As one teenager emphasized, "Most people our age don't worry about AIDS. We think we'll live forever. We're young, we can do what we want; we won't get hurt." As another teen observed, "Pregnancy is like AIDS. You think it's something that happens to other people."[12]

These statistics and these attitudes emphasized the need for a major educational program on AIDS which would reach America's teens. The program had a two-fold goal: to inform and to persuade--to persuade sexually active teens to take precautions to reduce the likelihood of contracting the AIDS virus during heterosexual intercourse. Secretary of Education Laura F. Cavazas has been a major proponent of such an approach, endorsing in-school programs of instruction, and President Bush has asked for $1.6 billion for AIDS education and testing.[13] According to the National Association of State Boards of Education, 24 states now require some form of AIDS education in schools.[14] But in-school educational programs are not necessarily the panacea for informing teens on sex or sexually transmitted diseases.[15] More important in these areas are peers and the mass media, say communication researchers. According to John A. Courtright and Stanley J. Baran, American teens are "quite strongly" affected by peers and the mass media "in the acquisition of sexual information."[16] Mass media, particularly, play a special role by providing a range of models and behaviors. Mass media also play vital roles in informing, advising and helping teens solve problems.[17] But the mass media used by teens are not necessarily the same ones used by adults. The teen years represent a time of flux in media use. According to Roberts and others, teens often turn their backs on TV for print. This audience particularly turns to print for "reality content."[18]

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[12] Megan Nerz, "Love Talk: Six Couples Speak Out," YM, June/July 1989, p. 84.

[13] Linn Ullman, "Voices: Time to Talk," Seventeen, September 1989, p. 112.

[14] "Condom Art in Grand Rapids," Newsweek, Aug. 28, 1989, p. 8.

[15] Teen pregnancy is the highest of any country in the industrialized world in spite of in-school sex education programs. More than one million teen girls get pregnant yearly. Washington Post, Nov. 25, 1986 and "A Parental Role in a teen's decision," Newsweek, July 17, 1989, p. 19. Drug in-school programs have also been experienced only limited success, Mark Miller, "Teaching Kids to Say No," Newsweek, June 5, 1989, p. 77.

But print does not necessarily mean newspapers. This group's readership of newspapers is at an all-time low.[19] This does not mean that teens do not read--it merely means that they choose to read another print medium. A whole new genre of magazines is serving the needs of America's teens. A quickly expanding "niche" in publishing today serves the "youth" market.[20] Since World War II, the number of magazines--and the number of their readers--has increased appreciably.[21] And, according to Barbara Straus Reed in her study of the market, the magazines she examined played special roles in the lives of their readers. The readers of 'Teen, Seventeen and YM, the periodicals included in her study, reported "high involvement or close feelings" for their magazines. Moreover, these young readers said they looked to their magazines to find out about issues affecting them and to "become more aware of changes in society." The readers also looked to their magazines for advice, to help them "cope with their problems."[22]

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[16] John A. Courtright and Stanley J. Baran, "The Acquisition of Sexual Information by Young People," Journalism Quarterly, Vol. 57: No. 1 (Spring 1980), pp. 107-14.

[17] Donald F. Roberts, "Communication and Children: A Developmental Approach" in Ithiel deSola Pool, Frederick W. Frey, Wilbur Schramm, Nathan Maccoby, and Edwin B. Parker (eds.), Handbook of Communication (Chicago: Rand McNally College Publishing Co., 1973), pp. 177, 183, 189.

[18] Roberts, "Communication and Children," op. cit., p. 189.

[19] Biagi, "Where have all the readers gone?" op. cit., p. 3.

[20] Standard Rate and Data Service, Consumer Magazine and Agri-Media Rates and Data, July 27, 1989, Vol. 71: No. 7; Rucker, "Magazines and Teenage Reading Skills, op.cit., p. 29.

[21] Janice S. Stewart, "Content and Readership of Teen Magazines," Journalism Quarterly, Vol. 41: No. 4 (Autumn 1964), p. 580.

These magazines, then, appear to play a vital role in their teen readers' lives. But what role do these magazines--the publications that teens look to for information, advice and guidance--play in informing their readers about AIDS? What types of information about this deadly virus do they give their readers? Moreover, how do these magazine editors tailor the news about AIDS to the interests, concerns and values of their teen subscribers? Is the goal of these editors to merely inform their youthful readers or is there more on the editors' agendas than just providing information?

These were the questions which lay at the heart of this research project. Many of the questions posed in this project could be answered with a content analysis which merely counted the number of references to AIDS and noted the fundamental information provided. However, such an approach would fail to answer the last question posed. Is the goal of these stories merely to inform or is there another end--teen action on the information provided.

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[22] Barbara Straus Reed, "Niche Building: A Uses and Gratifications Study of Magazines for Young Women," a paper presented to the Magazine Division of Association for Education in Journalism and Mass Communication, August 1, 1987, San Antonio, Tex.

That is more difficult to measure. However, James Lemert in Does Mass Communication Change Public Opinion After All? offers a potential solution. In his book, Lemert argues that if any message is to be effective in compelling audience action (in this case, changes in sexual practices or, at least, searching for additional information about AIDS), it must contain "mobilizing information (MI)." MI is defined as information which will allow readers (in this case, teens) to act upon the attitudes and desires they already have with regard to AIDS. Lemert identified three forms of MI: locational (giving time and places for lectures or TV programs about AIDS); identificational (providing enough identification to allow contact with experts in the field, such as the telephone number of the AIDS hotline); and tactical (giving implicit or explicit behavioral models which would reduce the likelihood of contracting the AIDS virus).[23] For purposes of this study, the tactical category was also expanded to include explicit advice on appropriate behavior to reduce the likelihood of contracting the AIDS virus. In each case, however, the decision to include--or exclude--MI is made by the editors of the magazine and represents a conscious decision on the part of the magazine's writers and editors.[24] Thus, this research project also included an examination of mobilizing information provided in the editorial content dealing with AIDS.

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[23] James B. Lemert, Does Mass Communication Change Public Opinion After All? A New Approach to Effects Analysis (Chicago: Nelson-Hall Inc., 1981), pp. 118, 121.
[24] Ibid., p. 121.

Hypotheses

Based on other studies dealing with AIDS and MI,[25] the following hypotheses were tested:

H(1) The amount of editorial content dealing with AIDS in the magazines aimed at the youth market will increase over time. (Thus, as the number of cases of AIDS among teens increased, so, too, would the amount of editorial comment increase in the magazines aimed at this audience.)

H(2) This editorial content will take the form of feature stories.

H(3) The amount of MI in such material will increase over the 15 months studied.

H(4) Identificational MI will be the most common type of MI published in these magazines aimed at a youth market.[26]

H(5) Magazines with an older teen readership will carry more tactical MI than publications aimed at a younger audience.

H(7) The tactical MI will be more explicit in magazines aimed at an older readership than publications aimed at a younger audience.

Methodology

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[25] Stanley Wearden, "Extent of Mobilizing Information in Front-Page Newspaper Stories about AIDS," paper presented at the Midwest Conference on the Social Implications of Aids, Illinois State University, October 1988.

[26] Such would be in keeping with the Wearden study of newspapers, ibid.

There are many magazines aimed at the youth market.[27] For this study, six were purposively selected: YM, Seventeen, Sassy, Purple Cow, Boys' Life, and 'Teen. YM, Sassy, 'Teen, and Seventeen were selected because they served a large, national, predominantly female readership.[28] Boys' Life was included because of its large, national, predominantly male audience.[29] One magazine was included because of its more specialized appeal. Purple Cow is one of the few city regionals aimed at teens in the U.S. The version used was published by, about and for teens in the Atlanta, Ga., metropolitan area.[30]

Because the teen group were identified "at risk" during the latter half of 1989, all available issues for 1989 and the first three months of 1990 were analyzed of the above noted periodicals.[31]

An instrument was developed to code editorial material which featured or discussed AIDS or the HIV-positive designation. No classified or displayed advertising was examined. The decision to exclude advertising was made for the following reasons. First, the editor and his/her staff have control over the editorial content and make conscious decisions with regard to that content. Second, editors on most magazines typically do not have direct control over what advertising is carried or the content of that advertising. Thus, whether the advertising is carried or whether that advertising contains MI is a decision made outside the editorial department and usually outside the publishing company. The instrument also included a number of questions which were designed to measure the frequency and type of MI included in each periodical.

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[27] SRDS, Consumer Magazine and Agri-Media Rates and Data, op. cit., pp. 660-8 and 639-54.

[28] Media kits, "YM for the Younger Woman," Sassy and Seventeen, 1989.

[29] Media kit, Boys' Life, 1989.

[30] The company also publishes other versions in a number of other cities. Media kit, Purple Cow, 1989. Another magazine was also originally slated to be included in this study. Right On! is a monthly designed to appeal to a predominatly black teen audience. Unfortunately, Right On! had just been sold and back issues could not be obtained. Accordingly, this publication was dropped from this study.

[31] Several issues were out of print and, therefore, unavailable: Purple Cow, May and August 1989; and Sassy, February and June 1989.Certain issues of magazines were unavailable.

Findings

Even though teenagers have been noted "at risk" in the AIDS epidemic, coverage of this disease in magazines aimed at this audience has been limited. Certain magazines have ignored the disease altogether. Boys' Life, which is aimed at a predominantly male audience in their teens,[32] completely ignored the disease during 1989 and the first three months of 1990. Although the publication dealt with drugs in a special issue,[33] the features did not deal with this disease, even though it can be transmitted via infected needles.

A similar situation existed in the city/regional teen magazine studied, Purple Cow. Although this periodical is published for, by and about teens,[34] this monthly failed to provide any editorial coverage of AIDS.[35] The publication did, however, cover drug abuse and sexual relationships.[36] Yet, in these articles, there was no discussion of AIDS.

The only teen magazines to deal with AIDS were the ones best characterized as fashion/lifestyle periodicals aimed at a largely female audience. Seventeen, the largest magazine in this class, carried the most about this subject. Between January 1989 and March 1990, the magazine carried 10 stories which dealt with AIDS in whole or in part.

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[32] Media kit, Boys' Life, 1989. Boys' Life is the monthly magazine of Boy Scouts of America.

[33] Boys' Life, November 1989.

[34] Purple Cow, February 1989, p. 2. This publication is distributed free via high school teen clubs, libraries and retail outlets.

[35] Purple Cow did run an advertisement for PBS programming during AIDS Awareness Month, April 1989, p. 23.

[36] See, for example, Purple Cow, January 1990, p. 9; February 1990, p. 17; and March 1990, p. 25.

Not far behind was YM (see Table one). Published by Guner-Jahr, YM serves a readership similar to Seventeen--the majority of its readers are female, 12 years of age or older. However, Seventeen's audience tends to be slightly older than YM's. (Average age of Seventeen's readership is 15.9 years, compared to YM's 15.1 years.)[37]

Table One

Articles dealing with AIDS

in whole or in part in teen magazines, 1989-1990 period

Magazine	No. of Articles
Seventeen	10
YM	6
'Teen	5
Sassy	1

Also providing coverage on AIDS was 'Teen, Peterson Publishing's entry into the market. Smaller in circulation than Seventeen, 'Teen serves the youngest audience in the group--with an average age of 14.8 years. During the time period studied, 'Teen carried five stories which dealt with AIDS in whole or in part.

The newest entry into this publishing niche is Sassy, which carried but a single reference to AIDS. Sassy serves a readership older than any of the other three publications (average age of 16.3 years). Launched in 1988 with an editorial mision to teach readers "tolerance by showing them a broad view of the world and the wide variety of people in it through her own brand of special investigative journalism,"[38] Sassy largely ignored the AIDS crisis among teens in the magazines examined in 1989 and early 1990.[39]

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[37] Media kit, Seventeen, 1989; YM asserts a slightly older, "adjusted" median age in its media kit. Average figure provided in text is based on aggregate "unadjusted" figures.

When they covered AIDS, teen magazine editors did so in a manner specifically designed to fit the experiences and concerns of the majority of their readership. Even though the AIDS virus is most frequently transmitted via homosexual intercourse or via contaminated needles during illegal drug activities, these subjects were seldom discussed when these editors dealt with the disease. In only one instance was homosexuality the primary focus of editorial material dealing with AIDS.[40] Instead, teen magazine editors focussed on heterosexual intercourse as the method of contracting the AIDS virus. While such an emphasis appears to be inconsistent with current trends in the transmission of AIDS, such an editorial approach is tailor-made for teen patterns of contracting the virus. According to medical experts, one of the reasons teens are "at risk" is their sexual habits. Evidence suggests that teen girls are most likely to contract AIDS during unprotected heterosexual intercourse.[41] Thus, these editors--in their emphasis on heterosexual intercourse--were actually focussing on a trend which may soon emerge as the primary method of transmission of the virus among teen girls (see Table two).

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[38] Media kit, "Sassy Editorial Mission," Sassy, 1989.

[39] The researcher was missing two issues of Sassy: June and February 1989. These issues were out of print.

[40] Kathy McCoy, "Homosexuality," in "Sex and Your Body" department, Seventeen, November 1989, pp. 80, 84.

[41] Linn Ullman, "Vocies: Time to Talk," Seventeen, September 1989, pp. 112-3.

Table Two

How AIDS is transmitted,

According to teen magazines

Magazine	Sex only noted	Homosexuality noted	Variety noted	None noted
Seventeen	5	1		4
YM	6			
'Teen	4		1	
Sassy				1

On the surface, the editorial coverage given AIDS in these periodicals appear to be dictated by readers. Editorial material on the disease appears in departments, frequently written in response to reader letters (N=8). However, a closer examination of the editorial content of these departments reveals that often readers ask questions not directly related to the virus; but the departmental editor brings up AIDS in the answer. 'Teen Magazine, particularly, relied on this method. For example, one teen wrote "Dear Jack," an advice column in 'Teen Magazine, on whether she should have sex with her boyfriend. In his response, "Jack" refocussed the question from sex to sexually transmitted diseases--

> ...weigh the risks--pregnancy, sexually transmitted diseases, fatal ones, like AIDS, emotional after-effects....You can see the choice gets easier. If you love him, and he loves you, it's simple to see, saying 'no'

is the ONLY answer.[42]

In other instances, however, teen letters directly prompted the discussion of AIDS. One teen asked a departmental editor of Seventeen Magazine if she could get AIDS from French kissing. Debra Kent, editor of the monthly column "Sex and Your Body," noted that there were no documented cases and then used the question to launch a broad discussion of AIDS and other sexually transmitted diseases.

> AIDS is a serious and scary disease, but there are no known cases of people becoming infected with AIDS through French kissing. The AIDS virus has been found in saliva, but the concentrations are believed to be too small to cause infection.

However, she cautioned it was "theoretically possible" to contract the virus if the girl had a cut or sore in the mouth. For more information, Kent suggested contacting the AIDS hot line. (The 800 number was provided.) The more serious threat in French kissing, Kent continued was with other sexually transmitted diseases such as syphilis, herpes, and gonorrhea.[43]

Another teen was concerned about ways to reduce her likelihood of contracting AIDS. In a letter to the editor of the department "Body Shop," this teen asked if she was adequately protected from AIDS by using the pill. No, responded the editor, the pill was not enough.

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[42] "To Have Sex or Not" in Dear Jack column, 'Teen Magazine, August 1989, p. 18.
[43] Debra Kent, "Kissing," in "Sex and Your Body," Seventeen, February 1990, p. 58.

> This Pill definitely can't stop you from getting AIDS--or any other sexually transmitted disease for that matter. Unless you can be absolutely sure your partner has never had sex with anybody else, experts recommend protecting yourself by using a condom. But since the Pill is a more reliable form of birth control than the condom, you may want to continue to use the Pill as well. Another option is to up condom effectiveness by using it with contraceptive foam.[44]

In other instances (N=5), departmental content was not linked to any specific reader question. For example, Kathy McCoy of Seventeen outlined the top hazards to a teen's health--a column apparently not prompted by any reader letter. One of the top hazards she pinpointed was AIDS.

> Sex can be hazardous to your health right now, and ultimately can threaten your fertility and even your life. Teenagers have been identified as the next major risk group from AIDS (though it is relatively uncommon in fourteen to eighteen-year-olds at present) and they are already among those at the greatest risk for many other sexually transmitted diseases.

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[44] "Body Shop," YM, February 1989, p. 42.

The best way for a teen to protect herself was by abstinence or, at least, by requiring that her sexual partner use a condom during intercourse.

> Abstinence is the only way to be completely safe from STDs. The next safest choice is to be in a relationship in which both partners begin as virgins and remain monogamous. Beyond this--or anytime there is any doubt about one partner's sexual history or current practices--the only way to protect yourself is by using a condom with a spermicide with nonoxynol-9 everytime you have sex.[45]

Far less frequent in these magazines were feature stories--outside of the magazine's health columns--dealing with AIDS. These features came in two varieties. The first (N =6) were feature stories on broader topics but included information on AIDS. The other, far less frequent (N=3) dealt solely with AIDS as a disease.

YM's feature, "Love Talk: Six Couples Speak Out," was typical of the first variety. In a wide-ranging article, 12 teens discussed if, when, why and how they had decided on sex. One area of discussion dealt with AIDS and their concerns about the disease. In another YM feature, Carol Weston broached the AIDS epidemic in an article on reasons why couples should stay "together" even if they are attending geographically separated colleges. One of Weston's reasons cited was the frequency of AIDS on campus.

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[45] Kathy McCoy, "Danger Zones: Top Hazards to Your Health," in "Sex and Your Body," Seventeen Magazine, August 1989, p. 170.

> AIDS on campus may not be rampant, but the threat is very real. Add the risk of herpes, chlaymydia, genital warts, and pregnancy and it's crazy not to factor in health considerations when deciding whether to date around.[46]

In all the magazines examined, only three features dealt solely with AIDS. In each instance, the authors provided considerably more detail than departmental treatments on the subject.

In a statistics-packed, four-page feature in 'Teen Magazine, Elizabeth Karlsberg emphasized the dangers of the AIDS virus. Today, homosexuals and drug abusers may be the primary groups at risk; but, Karlsberg insisted, unless something is done, teens were going to be added to the list. There might be only 352 reported cases of teens with AIDS; but the numbers did not reflect the seriousness of the problem. As one medical expert reported, "Because of the long latency period, AIDS is not an epidemic for teenagers, it is an epidemic of exposure."[47]

Much the same message was found in "Good Girls Get AIDS," a YM feature. This six-page feature was a first person account told by a 22-year-old woman with AIDS. Accompanied by a sidebar entitled, "Should you get tested?" the story outlined the incidence of AIDS among women and teenage girls. Promiscuity, the writer insisted, wasn't the issue. "But HIV infection is not about 'how many' as much as 'who.'" The best protection against AIDS, the writer insisted, was

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[46] Carol Weston, "Hometown Honey," YM, November 1989. p. 76.

[47] Elizabeth Karlsberg, "AIDS: Face Fears with New Facts," 'Teen Magazine, September 1989, p.38.

"Know your partner well, always use a condom, or better yet, just say no!"[48]

That advice was indicative of the greatest amount of material dealing with AIDS in these teen periodicals.

Mobilizing information of various types was a staple of the teen magazines that opted to cover the AIDS crisis.

In their coverage of the AIDS story, writers and editors of these teen magazines told their readers about the dangers from this disease. But beyond informing them, these same writers and editors provided key information to prompt teen action on their concerns about this disease. In the mobilizing information provided, magazine editors gave sources for these teens to contact for testing or additional information. In addition, these editors offered a range of appropriate behavioral models or advice to follow which would reduce the teen's likelihood of contracting the disease.

In 16 out of 22 instances, editors provided some form of mobilizing information in their stories dealing with AIDS. That information took a number of different shapes. Several stories provided the AIDS hotline number; others offered names of books for additional information.[49] The more likely form of MI provided in these magazines was tactical, or actual advice on handling sexual relations (N=l5) to reduce the likelihood of contracting the AIDS virus. In this regard, two behaviors were most frequently endorsed in these magazines: abstinence and condom use.

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[48] "Good Girls Get AIDS," as told to Elizabeth Tener, YM, January 1990, pp. 81-83.
[49] See, for example, Debra Kent, "Kissing," in "Sex and Your Body," Seventeen, February 1990, p. 58; and "Quiz: Test Your Sex Savvy," YM, May 1989, p. 28."

The abstinence option appeared most freqently in teen publications aimed at the younger audience. In three of the five stories about AIDS, 'Teen Magazine emphasized abstinence--and only abstinence--as the best protection against AIDS. As one departmental editor advised, with the risks of STDS including AIDS, pregnancy and emotional distress--"it's simple to see saying no is the only answer."[50] That was familiar advice; whatever the column, 'Teen Magazine seemed to suggested that abstinence was the only "real" solution. 'Teen's resident physician reemphasized that advice in June 1989. Teens should play it safe; "Sex free is risk-free."[51] In Only one instance did 'Teen Magazine introduce condom use as an alternative; and, even in that article, the preferred behavior was abstinence.[52]

In contrast, editors of YM and Seventeen were recommending a wider variety of behaviors with regard to AIDS. Unlike 'Teen Magazine which emphasized abstinence as the appropriate behavior, YM and Seventeen editors suggested condom use--in addition to abstinence--when discussing AIDS (N=11). The reason for this appears to be the composition of the audience of these two periodicals. YM and Seventeen editors served a slightly older and, apparently, more sexually experienced audience than 'Teen Magazine's. Accordingly, in providing behavioral models, YM and Seventeen editors gave their readers more options. The range of options was best articulated in "Good Girls Get AIDS"--"Know your partner well, always use a condom, or better yet, just say no!"[53]

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[50] "Dear Jack, 'Teen Magazine, August 1989, p. 18.

[51] Roy Rosen, M.D., "Dear Doctor," 'Teen Magazine, March 1989, p. 42.

[52] Elizabeth Karlsberg, "AIDS: Face Fears with New Facts," 'Teen Magazine, September 1989, pp. 34,36,38,40.

Sometimes, that advice became fairly specific. One magazine recommended a type of condom to use--latex-based. It is "most effective" in stopping the viral transmission.[54] In another instance, a writer suggested a specific compound for the spermicide--"nonoxynol-9.[55] Another noted specific condom brand names with spermicide already applied.[56]

Based on the content of the magazines examined, evidence suggests that certain hypotheses originally formulated for this study have not been supported.

For example, Hypothesis One, "The amount of editorial content dealing with AIDS in the magazines aimed at the youth market will increase over time," recieves some support from this study. Coverage of AIDS tends to increase after July 1989, approximately coinciding with new medical concerns about teens and AIDS. The amount of increase was limited (see Table three). Small numbers preclude a final conclusion on this hypothesis.

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[53] Elizabeth Tener, "Good Girls Get AIDS," YM, January 1990, p. 119.
[54] Kathy McCoy, "Facing Facts," in "Sex and Your Body," Seventeen, February 1989, p. 26.
[55] Kathy McCoy, "Danger Zones: Top Hazards to your Health," Seventeen, August 1989, p. 170.
[56] Kathy McCoy, "Facing Facts," Seventeen, February 1989, p. 26.

Table Three

Editorial coverage of AIDS over time

Month	No. of Stories
Feb. 1989	2
March 1989	1
May 1989	1
June 1989	1
July 1989	3
August 1989	4
Sept. 1989	3
Oct. 1989	2
Nov. 1989	2
Jan. 1990	1
Feb. 1990	1
March 1990	1

Hypothesis Two, "This editorial content will take the form of feature stories," does not appear to be supported. The largest number of stories dealing with AIDS appeared in departments dealing with health (N=13).

Hypothesis Three, "The amount of MI in such material will increase over time," does not appear to be supported by the findings of this study. Throughout the time period studied, teen magazine editors provided MI. There was no distinct time period when MI was not excluded in the editorial material dealing with AIDS.

Hypothesis Four, "Identificational MI will be the most common type of MI published in these magazines aimed at a youth market," does not appear to be supported. While one story provided identificational MI only, the largest amount of editorial material gives tactical information only or a combination of tactical and identificational MI (N=15). Tactical MI, then, was the primary type of mobilizing information provided consistently in the teen magazines covering the AIDS story.

Hypothesis Five, "Magazines with an older teen readership will carry more MI than publications aimed at a younger audience," cannot be discarded. Whether they were aimed at a younger or an older audience, teen magazines that covered the AIDS crisis provided mobilizing information. However, the explicitness of the advice and the range of behavior options did vary by magazine.

Hypothesis Six, "The tactical MI will be more explicit in magazines aimed at an older readership than publications aimed at a younger audience," appears to receive support from the findings of this study. 'Teen Magazine's approach to tactical MI--that is abstinence as the primary behavioral model or advice given--appears to differ from the advice given in YM and Seventeen, which provides more explicit advice especially as it relates to condom useage.

Conclusions

The shifts in the AIDS epidemic have brought America's teens into the path of the disease. Medical experts agree that many teens are exposing themselves to the risk of infection.

But how do you inform these teens about the dangers from AIDS? Some states say the answer is in-school educational programs; others aren't so sure.

The mass medium (i.e. magazines) specifically designed to reach teens is just as divided. Some of the magazines that reach millions of teen readers each month have opted to ignore the crisis.

Some editors of the magazines aimed at teen girls, however, are informing their readers of the dangers of AIDS. In the stories carried, editors of these magazines appear to have two goals: to inform and to get teens to act on their pre-existing concerns about the disease and be more responsible in their heterosexual relations. The findings of the content analysis, with regard to the amount of AIDS coverage provided as well as the MI inserted, support such a finding.

Thus, at least a portion of the magazines serving the youth market are giving much needed information to the newest group at risk in the AIDS epidemic--the teens of the nation.

Moreover, this study suggests that editors, at least in this specialized portion of the mass medium, are redefining news on AIDS to make it pertinent to the readership. Unlike newspaper and television coverage which regularly report newest developments or scientific findings, these magazine editors aren't concerned about spot news. They seem to be more concerned about just informing their readership that a danger exists, that teens are susceptible to this disease, that they should be alarmed, but that there are things which can be done about it. By providing the mobilizing information they do, these editors are, at least, arming teens with avenues for action--to get additional information or the needed testing. The tactical MI provided gives the readers some practical advice to reduce the likelihood of contracting the AIDS virus. Thus, while the editorial coverage does not deal with spot news or keep teens constantly informed about new developments in the AIDS epidemic, it does offer a tailor made approach to the teen audience.

This study, however, may be indicative of forthcoming changes with regard to AIDS coverage in these teen magazines. As more and more teens fall victim to the AIDS virus, these magazines may step up their coverage. Certainly, such would be in keeping with the findings in this study. Thus, this study may be charting only the first phase in teen magazine coverage of the AIDS crisis.

Abstract

Refocusing Science News to Reach a Specialized Audience: AIDS Coverage, Mobilizing Information and Teen Magazines

This study of six teen magazines illustrated that these publications are not uniformly covering the AIDS crisis even though their readership is the newest "at risk" group. Magazines either completely ignored the topic or provided a specially-tailored coverage. In the magazines covering the topic, much mobilizing information was provided. The mobilizing information included tended to vary by the age of the readership.

Abstract

Refocusing Science News to Reach a Specialized Audience: AIDS Coverage, Mobilizing Information and Teen Magazines

This study focuses on six teen publications--YM, Seventeen, 'Teen, Sassy, Boys' Life, and Purple Cow--and their coverage of the AIDS crisis at a time when teenages have been named the newest group "at risk" to the disease.

Findings suggest that the topic was not uniformly covered by all magazines. Two--Boys' Life and Purple Cow--ignored the subject altogether. The four magazines aimed at a predominantly female audience did, however, cover the topic. There were variations even within this group. Sassy covered the topic the least and Seventeen, the most.

With the exception of Sassy, these magazines provided much mobilizing information. However, the type of tactical MI (the most common form provided) varied considerably. Magazines aimed at an older audience offered a wider range of tactical MI than the magazine aimed at a younger audience.

NETWORK NEWS COVERAGE OF AIDS:
A THEMATIC ANALYSIS

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Introduction

Media theory has evolved to a point where television news is regarded not only as a disseminator of information but also as an active participant in the construction of meaning (Tuchman, 1978; Bennett, 1982; Adoni & Mane, 1984; Barkin & Gurevitch, 1987). Theorists characterize newscasts as constructed realities, produced by journalists acting as storytellers within their particular cultures and societies (Beckett, 1977; Glasgow Media Group, 1980; Carey, 1988). Journalists are therefore potentially powerful members of society who have the means to determine and maintain what is "real" by influencing how the audience comes to apprehend and understand the world.

This study takes science and health communication as a research site and examines the treatment by network television news of a compelling and controversial scientific issue. Because people use the media to orient themselves in society and further understand their world (McQuail et al, 1972), the presence of a set of common themes for science and health issues would prove particularly revealing. What people learn from television about scientific/medical discovery and society's treatment of those afflicted with disease is perhaps more likely to be taken as indisputable truth because many audience members have little background in sciences, and, in the absence of knowledge, television may have considerable power to shape societal perceptions and individual attitudes.

Crisis or "risk" situations, especially those which can present imminent questions of life or death, require that the reporter's story be especially accurate so as to avoid potentially irrevocable public misunderstandings. Television news coverage of Acquired Immune Deficiency Syndrome (AIDS) meets both of those conditions: it provides a situation involving significant public risk and a story with substantial scientific content. Journalists generally have trouble communicating these two elements because of television's need for suitable visual content and adequate audience appeal (Friedman, 1986; Silverstone, 1988). The fundamental question posed here is whether the three television networks utilize a common set of themes in constructing the televised reality of AIDS. These factors may affect the way in which the viewer makes sense of the world. As Barkin & Gurevitch (op. cit.) suggest,

> If the media are, indeed, the sources of such understandings for most people, we need to turn to the contents of the media to uncover the ways [issues are] framed, explained, and understood. (p. 3)

The present study is part of a larger content analysis of television coverage of AIDS.[1] This paper reports some of the structural findings, but concentrates on the thematic portion of the study.

Societal Perceptions of AIDS

Reporters and scientists define AIDS as a disease of "high-risk" groups such as intravenous (IV) drug users and homosexuals. These groups are frequently shunned by members of a predominantly non-drug using, heterosexual society. Moreover, it has been suggested that in order to perpetuate a preferred image of mainstream society, members of the culture externalize by creating explanations about the introduction of the disease (Sontag, 1988). These explanations serve to free "straight" society from possible blame or responsibility.

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[1] The broader study (Konick, 1989) is a master's thesis which contains an analysis of the structural characteristics of AIDS coverage, a thematic study of a random sample of correspondent field reports on the subject of AIDS and a visual/textual analysis of two field reports. The faculty advisor for the thesis was Dr. Mark Levy.

In this manner, Sontag contends, the prevailing system of social values remains intact as responsibility for the disease shifts across the oceans. In the case of AIDS, blame shifted to Africa and Haiti although neither population was classified as a high-risk group before a mid-1986 CDC report ("Heterosexual AIDS," 1986).

Accordingly, some people have dismissed AIDS as a foreign-born disease come to pass God's judgment upon those who practice deviant behaviors. News reports may have played up the foreign aspects of the disease and the effects on non-mainstream cultures, just as reports of the bubonic plague and syphilis did half a millennium ago (Gilman, 1988; Sontag, op. cit.). Thus, the battle lines are metaphorically drawn between those persons who would infect society and those who remain pure (beholden to or guided by the dominant norms of heterosexuality and avoidance of drug abuse). One would expect that through the media and other channels, politicians and researchers would attempt to define culturally proper behaviors due to the proliferation of the AIDS virus. Through these channels, viewers are, in turn, introduced to a set of government-sponsored behavior patterns which the public may or may not choose to internalize and practice.

Two recent studies of AIDS have drawn comparisons between news coverage of the disease and societal treatment of cancer and syphilis (Gilman, op. cit.; Sontag, op. cit.). Both studies found striking similarities between media content about AIDS and media content about syphilis even though they are very different diseases. Similarities in the way disease victims are represented by society and the media may lead to creation of a dominant set of images. Gilman suggests that these images are often misleading:

> It is evident that the study of images, both verbal and visual, of the sufferer of a disease reveals many of the often contradictory structures of our understanding of the disease. (p. 270)

Sontag concludes that coverage of AIDS by the media reflects every mass society's need to

> appeal for mass mobilization to confront an unprecedented menace . . . at frequent intervals. (p. 97)

Sontag emphasizes that this move to mobilization has manifested itself repeatedly in past treatment of persons with bubonic plague, syphilis and, more recently but to a lesser extent, herpes. Shilts (1987), meanwhile, cites the societal (and journalistic) perception of AIDS as a foreign-born disease (usually Haitian or African) subsequently brought to this country. Shilts suggests, as others have, that news reporting of AIDS is difficult.

> AIDS is an exceptionally fast-moving story. It is not only a technical and health story but a sociopolitical story that touches sensitive issues in all aspects of life. Much of what was considered factual is now known to be false. (Program on Risk Communications, 1987, p. 1)

Both journalists and researchers acknowledge that there was a breakdown in the manner in which AIDS was initially handled by the media (Bazell, 1988; Ziegler, 1988). Coverage began slowly. The cost may be counted in the thousands of deaths caused by the lack of risk awareness. Beyond that, the messages that were broadcast may not have been scientifically correct.

From Gilman's and Sontag's analyses, a set of metaphorical themes present in societal discourse on AIDS emerges. These include:

1) AIDS as scientist's fight
2) AIDS as plague
3) AIDS as foreign-born disease
4) AIDS as a disease of non-mainstream "fringe" groups
5) AIDS caretakers as "volunteers"
6) Isolation of AIDS victims from society

The first theme proceeds from society's need to conquer what is perceived to be a very personal threat, with science viewed as the means of defeating that threat. In societal discourse, AIDS is often described in terms of a "battle" or "war." Scientists are portrayed as soldiers who risk their lives to beat back a dreaded enemy.

AIDS as "plague" carries connotations of outside forces penetrating society and upsetting the population's natural balance. Society is helpless to fight AIDS (as with the Black Plague) but AIDS will, like earlier plagues, kill thousands and run its course in time. The drawback is that members of society must sacrifice some behaviors to make it go away more quickly.

AIDS as foreign-born disease ties in closely with AIDS as plague. In this theme, society refuses to accept blame for AIDS. Blame is shunted to "inferior" populations where AIDS is said to have first developed. Further, this theme is not culturally bound. Gilman (op. cit.) cites Russian cartoonists and African news reports that claim AIDS was developed in a Fort Detrick, Maryland, chemical warfare laboratory.

It is only natural that a given culture would externalize the blame for AIDS, since behaviors associated with contraction of the virus are considered by the mainstream to be aberrant and deviant. Thus, AIDS is portrayed as a disease of non-mainstream "fringe" groups.

The final two themes deal with treatment of people with AIDS, their caretakers and assistants. In the case of syphilis, patients were isolated from society for fear of spreading the infectious disease. The same holds true for AIDS, even though the disease cannot be transmitted through casual contact. Patient quarantines and employee firings are conditions which AIDS patients face that exemplify differential treatment by society. Further, an AIDS caretaker is often described as a "volunteer," entering a dangerous and possibly fatal setting in order to help the person with AIDS.

The Content Analysis

Between June 17, 1982 (the date of the first AIDS-related story, according to the Vanderbilt Television News Archive), and February 29, 1988, the networks aired 651 reports on AIDS. Of these, 464 stories were correspondent field reports. For the thematic portion of the study, 60 correspondent field segments were randomly chosen to be analyzed. Tapes were obtained from the Vanderbilt archive. In the analysis, themes were operationally defined as the central perspective on the disease (frequently, but not always, rooted in a metaphor) that was evoked in the story. Clearly, the method employed in the thematic analysis was descriptive and, in a sense, literary; two coders used discussion tactics to initially define the themes and then to reach a consensus of opinion in determining the primary and, if present, secondary themes in each report.

The stories were analyzed for specific content elements. These included the types of news sources quoted both on and off camera, the setting in which the on-camera sources were shown, the length and quantity of source quotes, and the quantity of quotes from sources not seen on-camera.

Four broad categories of sources were identified: authorities, victims, activists, and others. Authorities are people in a position of power, and include doctors, researchers, and elected officials. Victims are those people most directly affected by AIDS. Victims are, for the most part, powerless to effect change as they hold no special level of technical, economic or political power. These include persons with AIDS, hemophiliacs, gay business owners, IV drug users, and those who care for persons with AIDS (e.g. family members and caretakers).

Activists are news sources who attempt to influence policy change via protest and demonstration. Included in this category are both conservative and liberal activists, gay/lesbian activists, and parents on both sides of the debate regarding open-schools for AIDS-infected children.

Source quotes were also coded according to length of airtime and interview location. The implied "power" of location was characterized as high, low, or no implied power. Higher power interview locations include press conferences and offices. Conversely, lower power locations include the outdoors, foster homes, hospitals, or prisons.

Finally, the reports were examined to determine whom the networks describe as "victims" of the disease. The victims tally counts reporter/anchorperson statements of what groups of people are threatened by AIDS.

Of the 651 AIDS segments aired by the three network news programs, NBC accounted for most segments (n=243) with CBS second (n=219) and ABC third (n=189). ABC reports averaged 139 seconds each, while CBS and NBC stories were about 15 seconds briefer.

Table 1
Number and Length of Network AIDS Segments

Network	Number of segments	Mean length (seconds)	Standard Deviation
ABC	189	139	93
CBS	219	125	80
NBC	243	123	95
Total	651	128	90

The networks aired an average of 2.7 AIDS segments per month prior to the announcement that actor Rock Hudson was suffering from the disease; afterwards, the average was 17.3 per month.

Table 2

Network AIDS Segments by Month/Year

	1982	1983	1984	1985	1986	1987	1988
January	0	1	1	5	10	20	17
February	0	1	0	3	16	27	6
March	0	3	2	6	9	37	xx
April	0	1	7	2	10	19	xx
May	0	6	0	5	3	31	xx
June	1	9	0	0	18	36	xx
July	0	8	0	22	6	18	xx
August	0	9	2	18	15	22	xx
September	0	3	1	31	10	29	xx
October	2	3	4	20	15	15	xx
November	0	3	5	15	15	13	xx
December	3	0	1	10	10	11	xx
TOTAL	6	47	23	137	137	278	xx

The data that follows are based on analysis of the randomly chosen sample of stories (n=60), consisting of 26 ABC stories, and 17 each from CBS and NBC.

According to 1988 CDC statistics (see Table 3), nearly 87 percent of all new AIDS cases were among homosexual or bisexual males and IV-drug users. Heterosexual transmission accounts for just under 5% of the total number of new cases. The remaining 8% of new AIDS cases are attributed to transfusion of blood or blood products. Although comparatively few cases of heterosexual AIDS were reported to the CDC, news reports gave considerable attention to the risk for heterosexuals (see Table 4).

Table 3

Characteristics of Persons with AIDS 1987-1988

DESCRIPTION	Percentage of New Cases by Year 1987	1988
Homosexual/bisexual Male	64.5	56.7
IV-drug user	17.2	23.7
Homosexual/bisexual/male drug user	7.3	6.5
Heterosexual transmission	4.2	4.9
Hemophiliacs/transfusions	4.0	3.6
Undetermined	2.8	4.6
TOTAL	100.0	100.0

Source: Centers for Disease Control, 1988, 1989.

Table 4

Network Descriptions of Likely AIDS Victims

DESCRIPTION	PERCENTAGES
Gay males	14.2
IV-drug users	13.3
Heterosexual male	12.4
Heterosexual female	11.5
Children	8.8
Surgery/transfusion patients	8.0
Hemophiliacs	6.2
Prostitutes	6.2
Africans	4.4
Lesbians	4.4
Haitians	2.7
Johns	2.7
Prisoners	1.8
Rock Hudson	1.8
Generic non-high risk groups	0.8
"Heterosexual ghetto dwellers"	0.8
(N=113)	100.0

Among sources, authority figures (53.0%) far outdistanced victims (18.3%) and activists (15.0%) as source quotes on the newscasts. The settings (locations) in which authorities are interviewed enhances the power of their message. Cross-tabulation of sources by setting indicated that authority figures associate highly with high power settings. On the other hand, "victims" were consistently seen within settings that did not enhance their power significantly. Victims received nearly two seconds less airtime per quote than did authorities. A listing of sources not seen on camera further indicates what sources the networks emphasized (see Table 5). Of the 123 quotes from these sources, authority figures accounted for more than three-quarters of all mentions.

Table 5

Quotes from Sources Not Seen

SOURCE		PERCENTAGE OF ALL QUOTES
Government health officials		31.7
Private health officials		15.4
Doctor/Nurse/Hospital staff		8.1
Surgeon General Koop		6.5
Gay activists		4.9
Proprietor of non-gay business		4.1
Liberal activists		3.3
Other		3.3
Caretaker		2.4
Clergy		2.4
Justice Department		2.4
Republicans		2.4
School officials/teachers		2.4
University researchers		2.4
Reagan/Bush		1.6
State/local government officials		1.6
Actor		0.8
Anti-gay activists		0.8
Democrats		0.8
Parent---against open schools		0.8
Persons with AIDS---family		0.8
Test/vaccine candidate		0.8
TOTAL	(N=123)	100.0

Themes in the Coverage

We began with the six themes mentioned earlier, and condensed three of them into a single theme called "*AIDS as plague*." These were "AIDS as plague," "AIDS as foreign-born disease," and "Isolation of AIDS victims from society." The theme, "AIDS as disease of non-mainstream fringe groups," was separated from the others to better understand the framing of AIDS as a mainstream vs. non-mainstream affliction. "AIDS as scientists' fight" was considered a separate theme. "AIDS caretakers as volunteers" was eliminated because it was considered more a subject than a theme. (Subjects refer more to the general topic of the segment rather than to its central explicit or implicit meaning.) "...Volunteers" was considered a variation on the "AIDS as plague" theme. Also, after review of the tapes, six themes were added to the list to more fully define the textual issues and images available within network news discourse on AIDS. The resulting themes were as follows:

AIDS as plague

AIDS is a disease whose mode of transmission has been difficult to define. It can be lurking in the body for years in a somewhat dormant phase with no symptoms or outward manifestations of illness. Because there are so many questions about who can get AIDS and how one can avoid it, the disease has developed an aura of mystery (and subsequently, fear) about it. Further, it is a disease without cure.

Because society is helpless to control the spread of AIDS, it has been compared to the Black Plague. These comparisons include the description of AIDS as a foreign-born disease which has killed thousands of people worldwide. The birthplace of the disease is often implied by the media to be Africa or Haiti, two areas of the world which are primarily poor, underdeveloped, and black. As with the Black Plague, more advanced societies place blame on "lesser" Third World populations.

Another plague-like societal reaction is manifest in the behaviors surrounding treatment of those afflicted with the disease. In the content, persons with AIDS are rarely seen as typical functioning members of society. Rather, they are isolated, either in group homes with other persons with AIDS, in special hospital wards, or in isolated prison wards where they live out their death sentence alone. In school and job settings, there is often discussion of segregating persons with AIDS if they are allowed in that setting at all.

Policies are wrong, unfair or inadequate

Government authorities incorrectly or unfairly assess the AIDS situation and its connection to various elements of society. Their policies are perceived to be improper in execution and/or justification. The policies deal with education of the public, prevention of AIDS, and the degree to which persons with AIDS can participate in customary societal functions such as employment and/or education. Policies are mandated by government agencies, the courts, school boards, and private companies.

This theme frames the person with AIDS as a victim of policy. One example is that of Ryan White, whose desire to remain in school was met by opposition and subsequent court battles. The coverage of Ryan White often portrayed him as a victim of the policies set by school boards and courts.

This theme also pits the rights of individuals to privacy against the need for the government to try to control the disease. In one instance, a proposed Colorado law sought to require doctors to report the names of all patients testing positive for the AIDS virus. In interviews, gay rights advocates claimed that this would "drive the gay population underground." They said that it would discourage those who were HIV-positive from reporting and treating their disease because of a fear of repercussions from the community.

Uncaring society

Despite the effort to educate the general population, not everyone is aware of the facts concerning transmission of the AIDS virus. Ignorance of these facts, mistrust in what is reported as fact, and fear of the unknown contribute to discrimination against people with AIDS. The uncaring society theme is often present when protestors appear ignorant of these facts. Frequently, parental groups are divided in their opinions regarding whether AIDS-infected individuals should be allowed in the public schools that their children attend. Parents who want to ban these individuals from schools are afraid that the virus will be transmitted to their children through casual contact.

Another uncaring society motif is the presentation of AIDS as a business opportunity. In times of crisis, there is always someone willing to cash in on the misfortune of others. AIDS provides a lucrative business climate for pharmaceutical companies, "disease-free" dating services, advertising agencies, and condom vendors.

AIDS as a disease of non-mainstream "fringe" groups

While the AIDS as plague theme represents AIDS as a disease of the many, this theme indicates a narrower spread of the disease. This theme concentrates AIDS among what mainstream members of society describe as an aberrant or deviant subpopulation. Among those considered most at risk are IV-drug users, prostitutes, and homosexual males.

This theme is closest to the reality of CDC statistics (1988) and counters the heterosexual-transmission emphasis of AIDS as plague. In several segments, IV-drug users are seen sharing needles; they all have AIDS. In others, gays are portrayed as those most likely to contract the disease. Because of the concentration on these lifestyles, this theme may also tend to support the idea that non-standard behaviors will result in negative consequences such as the contraction of AIDS.

Caring society

Society cares for and nurtures those who experience personal crises, because misfortune can happen to anyone. The Judeo-Christian concept of the "good Samaritan" is embraced by members of society and traditional barriers (biases/prejudices) are broken down in such situations.

In one segment, the theme is developed in the way churches provide care and peace for persons with AIDS, who would otherwise be shunned by society. Specifically, the piece dealt with an baby who contracted AIDS while still in her mother's womb. Members of a California church provide the newborn with love and support even though she is not likely to reach her second birthday.

Caring society is also the primary theme of a piece which aired on NBC in 1987. "AIDS Angels" describes how a few geographically well-spaced persons are giving persons with AIDS attention, food, and in one case, a home.[2]

AIDS as scientists' fight

The human body is a battleground in miniature where antibodies attempt to fight off the intruding AIDS virus. Once the virus has taken over the body's immune system, opportunistic infections can more readily take control as wave after wave of small infections devastate the immune system. Researchers and doctors are the soldiers who must do battle in order to unravel the mechanisms behind transmission and ultimately, kill the enemy.

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[2] See Konick (1989) for a more comprehensive thematic and narrative analysis of this story.

Public policies work

Authorities accurately and equitably handle the AIDS situation. They provide for persons with AIDS and society as a whole through fair and appropriate legislation and strongly-worded rulings.

This theme is best expressed in the story of a popular AIDS-infected teacher who was banned from a school for hearing-disabled students. After months of litigation, the teacher was allowed back into the school, to the delight of students, parents, and the teacher himself.

Times are getting worse

Despite years of research and millions of dollars spent, scientists are barely closer to a cure for AIDS. Vaccines are being researched but are still decades away. In the meantime, thousands are dying every year, and that number will increase dramatically with time. Further, ours is a society where city governments give junkies free sterile needles in order to combat the spread of AIDS. This practice sends a message that moral standards are no longer upheld.

Times are getting better

Breakthroughs in AIDS research, a greater awareness of the problem within the general population, and a growing climate of understanding toward persons with AIDS will contribute to a more positive future.

Findings

These nine themes are included to various degrees in each of the sixty segments analyzed. The nature of the coverage changed markedly when Rock Hudson was diagnosed as having contracted the AIDS virus in July 1985. That announcement was the turning point in network coverage of AIDS because it provided a focus to the story. That Hudson was a well-known actor with supposedly heterosexual preferences made the story even more dramatic, and the amount of coverage increased substantially. Accordingly, the frequency of themes was analyzed for the period prior to the first Rock Hudson story (7/23/85) and afterward (see table 6).

Table 6

Thematic representations of AIDS before and after Rock Hudson's announcement (in percent)

Theme	Before	After	Overall
AIDS as plague	38.4	20.8	23.5
Policies are wrong...	–	20.8	17.6
Uncaring society	7.7	18.2	16.5
Disease of fringe groups	15.4	8.3	9.4
Caring society	15.4	6.9	8.2
AIDS as scientist's fight	7.7	6.9	7.1
Times are getting worse	15.4	5.6	7.1
Times are getting better	–	6.9	5.9
Policies work	–	5.6	4.7
	100.0	100.0	100.0
	(13)	(72)	(85)

Of the six themes present in the earlier period, "AIDS as plague" was the most prevalent, with 38.4% of the total number of themes. This theme is expected to be at the top of the list of themes represented for several reasons. First, research had not yet progressed to the point where scientists understood all the mechanisms involved in the AIDS virus and its transmission. Second, the virus had not been given the acronym "AIDS" until one year into the start of coverage. Third, policies had not yet been implemented because few government officials were aware that the disease existed at all. Even though there were geometric leaps made in the number of new cases per year, the overall number of fatalities was still very small. Without an overarching explanation for the disease, the reports emphasized its mysterious and unknown character.

AIDS cases in the United States at the time indicate a disease affecting non-mainstream individuals, mostly gays, Haitians, and IV-drug users, consistent with the "fringe-group" theme. AIDS as a disease of non-mainstream fringe groups appeared 15.4% of the total number of all themes during the early period. While this would seem to be an accurate description of the spread of the disease at the time, this theme was often tied to the phrase, "AIDS is no longer a disease affecting only homosexuals and Haitians." This theme may in fact be connected to the opposite effect--suggesting linkages to heterosexuals, children, and others. In this manner, the coverage implied that heterosexuals and Americans were now contracting, or at least threatened by, AIDS. However, while it is true that heterosexuals were contracting AIDS in increasing numbers, the statistics do not appear to have warranted such implications.

Before the Rock Hudson story, the themes "Times are getting worse" (15.4%) and "Caring society" appeared with equal frequency. "Times are getting worse" was exclusively used as part of a good news/bad news story, although the "Times are getting better" aspect of the story did not warrant definition as a theme in the earlier period.

In the latter period, the two were consistently linked as good news/bad news stories. These are stories which mention a breakthrough in research while emphasizing that the cure is still years away. Thus, "Times are getting better" is a deceptive theme in the early period, and throughout coverage of AIDS. It encourages optimism, but almost simultaneously counters that with pessimism. This is likely due at least in part to the tenet of objectivity and an editorial tendency to balance the emotional impact of a story while uncertainty about the AIDS virus remained high. Ultimately, the networks could not report bad news every night; they had to balance the negative aspects with the positive. In this manner, combinations of themes present themselves occasionally.

The biggest difference between the pre- and post-Rock Hudson period was the shift toward more policy-oriented coverage. In the post-Rock Hudson announcement period, AIDS is still on occasion seen as a disease of non-mainstream "fringe" groups (8.3%). But as research continued to "unravel the mysteries" of the AIDS virus and policy questions dominated coverage of AIDS (26.4%), the prevalence of AIDS as plague lessened (20.8%). Many more stories emphasized the policy aspects of the disease. During this period, the theme "Policies are wrong/unfair/inadequate" became more prevalent (20.8%). No longer were the networks concerned with whether times were getting better or worse; instead, they concentrated on issues. Thus, three new themes emerged during this period, "Times are getting better" (6.9%), "Policies work" (5.6%), and the above-mentioned "Policies are wrong/unfair/inadequate."

The data also suggest that the networks were no longer able to sustain the story just by reporting breakthroughs and summations of already-known facts.

Instead, they moved into the phenomenon's effect on society. From the media's perspective, the enemy had to be defined before its effect on society could be explored. AIDS was first defined as an important science/health story. Later, it became more of a social issues story, with each breakthrough providing the impetus for another round of segments featuring issues surrounding AIDS.

Of note is the theme "AIDS as plague," which is present as a primary or secondary theme in nearly one-quarter of the segments (23.5%) (see table 7). In many segments, AIDS was described variously as an epidemic, a disease with no cure in sight, or was compared to centuries-old, plague-like diseases such as bubonic plague or leprosy. This affirms the contention of Gilman and Sontag that severe viral disease representation rarely varies.

Table 7

Primary and secondary themes (in percent)

Theme	Primary	Secondary	Overall
AIDS as plague	22.8	25.0	23.5
Policies are wrong...	15.8	21.4	17.6
Uncaring society	21.1	7.1	16.5
Disease of fringe groups	8.8	10.7	9.4
Caring society	10.5	3.6	8.2
AIDS as scientist's fight	8.8	3.6	7.1
Times are getting worse	3.5	14.3	7.1
Times are getting better	3.5	10.7	5.9
Policies work	5.3	3.6	4.7
	100.0	100.0	100.0
	(57)	(28)	(85)

"Uncaring society" is the second most prevalent primary theme (21.1%). This theme incorporates the plight of Ryan White, the teenage hemophiliac in Indiana barred from attending public school after it was learned that he had contracted AIDS from a blood transfusion. His story was followed by the networks up until his death earlier this year.

Ryan White's was the first of many stories about children with AIDS. Another story involved the Ray brothers. The three are from Arcadia, Florida and like Ryan White, are hemophiliacs who contracted AIDS from a blood transfusion. In one segment, an ABC reporter tells the story of how their house was gutted in what was suspected to be arson. It represents the archetypal "uncaring society" story. The fact that children were chosen to be used to exemplify the theme of "uncaring society" should not be underestimated. Adults simply would not garner the sympathy that a child would. Although there are many stories about persons with AIDS, the Ryan White and Ray Brothers stories are the ones most readily remembered because they emphasize the fact that any innocent child could contract the AIDS virus.[3]

"Policies are wrong/unfair/inadequate" is also prominent within the segments (17.6% overall). Because it is a theme which supports other themes (i.e., we have an uncaring society because policies are wrong), it is often paired with other themes. In fact, it is one of the most prevalent themes overall mostly due to its use a secondary theme (21.4%). The same narrative strategy is used when the secondary theme is "Times are getting better" or "Times are getting worse." These themes appear more often in a supporting role than as centerpieces of the segments.

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[3] See Konick (1989) for a more comprehensive thematic and narrative analysis of this story.

Conclusion

Several of the themes create special pairings which say much about the nature of network coverage of AIDS. One of these pairings has already been discussed, that of "Times are getting better/Times are getting worse". Two other combinations of themes are "Uncaring society/caring society" and "Policies are wrong.../policies work." Here, the viewer was presented with two competing perspectives of nearly equal strength. A critical view of societal responses to AIDS was likely to be narratively balanced with its counter-theme.

Generally the use of paired thematic narratives shows that network coverage often was able to frame the story in two distinct, occasionally conflicting, ways. In covering AIDS, television news frequently attempted to raise large issues by introducing very personal stories. At a personal level, the segments urge compassion for persons with AIDS. At the societal level, however, the coverage raises questions, sometimes fearfully, about the impact of the disease on the rest of us. Personal concern for victims exists alongside a more pragmatic and cautious expression of mutual self-interest. This narrative balance exists along several continua: good news/bad news, authority/victim, pro-policy/anti-policy.

The thematic analysis indicates that the networks did use a set of prevalent textual themes to describe AIDS. Several themes recur more frequently, and although the set is small, it encompasses many viewpoints. The framing of AIDS as a plague actively maintained the authorities' viewpoint throughout the coverage while the uncaring society, caring society, and policies are wrong/unfair/inadequate themes cast persons with AIDS in a more sympathetic light.

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ALCOHOL ADVERTISING IN A PUBLIC UNIVERSITY NEWSPAPER:

AN ETHICAL RESPONSE TO A LEGAL DILEMMA

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ALCOHOL ADVERTISING IN A PUBLIC UNIVERSITY NEWSPAPER: AN ETHICAL RESPONSE TO A LEGAL DILEMMA

The American public is increasingly concerned about the possible contribution of advertising of alcoholic beverages to alcohol abuse. Organizations such as Mothers against Drunk Driving (MADD) and Students against Drunk Driving (SADD) have had prominent roles in lobbying for either voluntary or legislatively-required restraints on alcoholic beverage advertising, particularly that which these interest groups contend is aimed at young people under the legal drinking age.

On May 31, 1989, the U.S. Surgeon General's Workshop on Drunk Driving released a report which indicated that alcohol abuse annually kills 24,000 Americans and injures 534,000 more. Among its nine recommendations for alleviating the problem, the Surgeon General's panel of experts proposed restriction of "certain types of advertising and marketing practices, especially those which reach underage youth." The report suggested this restriction should be accomplished by "*voluntary restraint by alcoholic beverage producers and distributors, as well as by the media and entertainment industry.*" (Emphasis added) [1]

However, implying that voluntary means might be insufficient, the panel also urged the Surgeon General to recommend that university presidents ban alcohol advertising and promotions on campuses where a high proportion of students are under age 21. Those universities which failed to implement such a ban by September 1990 should be subject to legal or economic "sanctions," the report suggested. [2] The U. S. Senate has since supported the denial of federally-funded student loans to universities which do not adopt such a ban. [3]

Even before the Surgeon General's Report had been released, some private universities had moved to ban alcohol-related advertising and promotions on their campuses. For example, in 1988 the University of Notre Dame had banned alcohol-related ads from programs distributed at athletic events and from university publications, including the student newspaper *The Observer*. [4] In addition, the Virginia Alcoholic Beverage Control Board in November 1988 created a restriction that disallowed ads for beer, wine and mixed beverages in student newspaper "unless in reference to a dining establishment." [5]

The release of the Surgeon General's report emboldened some public universities to devise policies to restrict alcohol advertising. For example, Washington State University banned alcohol distributors from sponsoring athletic games and other campus events, and the University of California at Los Angeles adopted a policy which limited ads on campus that used the university's name in combination with the name of an alcoholic beverage or with a logo used by an alcoholic beverage manufacturer. [6] Another private university, the University of Scranton, in August 1989 banned alcohol ads from its student newspaper *The Aquinas*. [7]

Student newspaper editors and advisers and spokespersons for the alcoholic beverage industry have decried these policies as undue restraints on commercial speech. [8] As of this writing no challenge, on First Amendment grounds, had been filed against any policy that restricts or bans alcohol advertising in campus media. However, as this paper will argue, such a challenge might well fail, considering the repeated emphasis of the present Supreme Court of the United States that non-commercial speech is more deserving than commercial speech of First Amendment protection. [9]

In order to avoid the trouble and expense, and possible defeat, of a lawsuit over these matters, a university newspaper staff might be well advised to accept the Surgeon General's suggestion to voluntarily reconsider its policy on alcohol advertising -- before nonjournalists, i.e., university presidents, impose a policy on the newspaper. One newspaper staff which did so is that of *The Orion* of California State University at Chico. Faced with a strongly implied threat by the university president that he would abolish alcohol ads in *The Orion*, the newspaper staff considered whether certain types of alcohol ads might in fact contribute to the problem of alcohol abuse at the university, "attempting to balance our freedom of the press with our responsibility to the community." [10] In so doing, the students transformed the issue from one of law to one of ethics. Eventually, the staff voluntarily revised its advertising policy to prohibit certain types of alcohol advertising messages. The political pressure on the newspaper abated; the newspaper did not, as it had feared, lose significant amounts of advertising revenue; and both parties were relatively satisfied by this outcome. The willingness of both parties to compromise illustrates the moral principle of Aristotle's "Golden Mean" -- that virtue, or wisdom, may be located between two extremes, or vices. [11]

The first section of this paper describes the political-cultural context in Chico out of which emerged President Robin Wilson's proposal on alcohol advertising in *The Orion*. The following section will examine the theory of administrative regulation of a public university newspaper that Wilson implied in his statement that *Trustees of the State University of New York v. Fox* might "enable" him to restrict or ban alcohol ads in the campus weekly. The final section will examine the process by which *The Orion* staff voluntarily revised its alcohol advertising policy.

BACKGROUND: A PRESIDENT WITH A MISSION

Robin Wilson was appointed president of Chico State University in March 1980. From the beginning of his tenure, the former associate provost at Ohio State University has been on a mission to upgrade the academic program at Chico State and to change the university's "sad reputation as a bibulous institution." [12] In one of the earlier interviews he gave as president, Wilson commented on the university's "party school" image: "When there's a lot of partying going on, the educational curriculum might not be rigorous enough." [13]

Wilson immediately demanded tougher grading standards, which eventually resulted in a lowering of the overall grade-point average of the university's students; he placed heavier emphasis on faculty research productivity; and he made sure that regional media were well informed about the successes of the academic program, such as the large numbers of Chico State graduates hired by Big Eight accounting firms and industrial giants such as Hewlett-Packard. [14]

Many people in the university community believe that the president's public relations campaign to improve the university's image was succeeding, but in the winter of 1986 and spring of 1987 several related events combined to mar Chico State's reputation on the national level. First, in November 1986 *Playboy*, in its annual ranking of the "Top 10 Party Schools in America," named Chico State as No. 1. The following spring, as the university's annual Pioneer Days celebration was about to begin, Music Television (MTV) began to encourage viewers to come to Chico for "the No. 1 blowout in the country." [15] Thousands of out-of-towners poured into the city during the first weekend in April; a drunken mob estimated at 1,000 people clashed with police near the university campus; and city officials had to request aid from hundreds of nearby law enforcement officials to maintain order. [16] The incident drew national headlines and was reported on network television news.

Wilson reacted by cancelling Pioneer Days, which had been celebrated for 72 years at the university. "In the last six to seven years, we have become truly competitive academically," he told *The Sacramento Bee*. "But this reputation has been shot in the head." [17]

By the summer of 1989, advertising for alcoholic beverages had become a prime target in Wilson's battle against the forces he believed were damaging the university's chances for respectability. Following the release of the report on drunk driving by the Surgeon General, Wilson on July 12, in a letter to Chico State's vice president for Student Affairs, attacked alcohol abuse as probably "the leading cause of death in the age group most representative of our campus student population" and called for an institutional effort "to reduce the easy tolerance for alcohol abuse fostered by the advertisers of such [alcoholic beverage] products." [18]

> I make no hypocritic call for prohibition or abstinence....What I do call for is a series of small steps designed to alter the atmosphere of chuckling indulgence for toxicity, the campus ambience which suggests that booze is the center -- not the fringe -- of social activity....[19]

The president proposed 12 ways to attack the problem; five of the proposals had to do with limiting or eliminating advertising and promotions for alcoholic beverages. A task force consisting of faculty, staff and students was formed to study the feasibility of Wilson's proposals and to give him a report early in the Fall Semester.

Among Wilson's proposals was:

Explore steps to reduce or eliminate the advertisement of alcoholic beverages in *The Orion,* either through voluntary restraint by advertisers or through rejection of such advertising on the basis that a significant number of readers (and financial supporters of the publication, via student activity fees) are underage. [20]

Wilson acknowledged that "there may be [legal] issues of commercial speech involved in this action" and that "the financial impact of the policy [on the newspaper's advertising revenue] may be considerable." The president suggested, however,that *Board of Trustees of the State University of New York v. Fox* might be legally "enabling." [21]

In effect, the president was strongly suggesting that *The Orion* reconsider, and perhaps revise, its policy on alcohol advertising or possibly be forced to confront some executive action aimed at reducing or eliminating these ads from the student newspaper. In the worst case, Wilson might have ordered a total ban on such ads -- an action presenting the newspaper staff with the dilemma of whether to contest the order on First Amendment grounds.

In a separate executive memorandum -- which did not address alcohol advertising but which was widely believed to be another method for restraining such advertising -- Wilson cited a section of the California State University Administrative Code as his authority for banning from university property all commercial advertising in the form of handbills, circulars and other printed materials "without the clear sponsorship of a university-recognized campus organization and the explicit approval of the vice president for Student Affairs." [22] Employees of the Student Affairs office immediately began removing fliers from 60 public bulletin boards on campus, with workers from Plant Operations having responsibility for removing the remainder of such advertising from classrooms and other campus locations.

It was clear, then, that Wilson was willing to take drastic action -- including possibly ordering the student newspaper to refuse all advertising for alcoholic beverages -- in order to achieve his goals. In requesting a "discussion" of his proposal to reduce or eliminate alcohol advertising in *The Orion*, Wilson suggested that such an order would be on constitutionally solid ground. The next section of this paper will examine the theory of administrative regulation of advertising in the campus newspaper, as implied in Wilson's proposal.

FIRST AMENDMENT PROTECTION FOR COMMERCIAL SPEECH IN PUBLIC UNIVERSITY NEWSPAPERS

Wilson apparently made two assumptions in asserting his regulatory authority over *The Orion*: first, that a university president may regulate a newspaper because it is supported by student fees; and second, that a state (through its university administrators) may regulate advertising which promotes an illegal activity (in this case, alcohol consumption by the 35 percent of Chico State University students under the legal drinking age of 21). [23]

The first assumption may be dismissed readily. *The Orion* receives no subsidy from Chico State student fees. The newspaper's operating 1988-89 budget of approximately $100,000 was paid entirely by advertising revenue; the university provided office space, paid the utilities bill (as it does for all other offices) and provided "salary" in the form of release time from teaching for *The Orion* faculty adviser. Even if *The Orion* had received student fees or other university subsidies, that fact would not have given university administrators or faculty the right to exercise content-related control over the newspaper. [24]

Wilson's second assumption may not be so easily dismissed. Indeed, it is possible that a First Amendment-based legal challenge to a presidential ban on alcohol advertising in *The Orion* might fail. To understand why such a lawsuit might fail, we must examine the freedom of advertising in public university newspapers in the context of the shifting, general constitutional protection for commercial speech.

In *Central Hudson Gas & Electric Corporation v. Public Service Commission of New York* (1980), the Supreme Court of the United States outlined a four-part test which government must meet before it may regulate advertising for legal products and services. The government (1) must determine whether the advertisement promotes an unlawful activity or is misleading, (2) must assert *a substantial state interest* to justify the regulation, (3) must demonstrate that the regulation of the advertising *directly advances this interest* and (4) must regulate the ad in a manner "*not more extensive than is necessary to serve that interest.*" (Emphasis added) [25] The Supreme Court has subsequently referred to part (4) of the test as the "least restrictive means" approach to regulating an ad.

As Don R. Pember points out, unless government can meet this four-part test, courts are likely to strike any regulation of advertising as a violation of the First Amendment. However, Pember adds, the "doctrine of commercial speech" is a relatively new and still evolving area of law [26]; and recent decisions of the Supreme Court of the United States have made it easier for government to regulate commercial speech.

In *Posadas de Puerto Rico Association v. Tourism Co.* (1986), the Supreme Court allowed the government of Puerto Rico to ban advertising for a legal activity -- in this case, ads encouraging citizens of Puerto Rico to gamble in Puerto Rican casinos -- by applying the *Central Hudson* test. [27]

Even more recently, in *Board of Trustees of the State University of New York v. Fox* -- the 1989 decision which President Wilson viewed as possibly "enabling" in the imposition of regulations on alcohol advertising in *The Orion* -- the Supreme Court modified the *Central Hudson* test in an important way. The court said that a government regulation of advertising does not have to be the "least restrictive alternative" but merely a "reasonable" regulation. In this case, a group of students at SUNY-Cortland had challenged New York State's "time, place and manner restrictions" on commercial access to school dormitories; they argued that the regulation violated their First Amendment right to host product demonstrations or sales parties in their rooms. [28]

In October 1982 a representative of American Future Systems held in a dormitory room at SUNY-Cortland an event that is popularly called a "Tupperware party": to demonstrate and sell china, cutlery and cookware to university students. The AFS representative was arrested by campus police for violating Resolution 66-156, which forbade unauthorized commercial activity on university property. The AFS and students sued the university, contending that students had a right to receive this type of commercial information in their campus residences. The suit went to trial, and a U.S. district judge ruled for the university. He accepted the university's argument that it had asserted a substantial interest for the regulation: "promoting an educational rather than a commercial atmosphere on SUNY's campuses, promoting safety and security, preventing commercial exploitation of students and preserving residential tranquility." [29] However, the Court of Appeals, while agreeing with the substantial-interest argument, reversed the decision of the district court, holding that the trial judge had not determined whether Resolution 66-156 directly advanced the state's asserted interest and whether, if it did, it was the "least restrictive means to that end." SUNY appealed the order for a new hearing to answer these questions, and the Supreme Court of the United States granted certiorari.

Justice Scalia, writing for a 6-3 majority, reasoned that a "least restrictive means" test for regulating advertising imposed on government "the difficulty of establishing with precision the point at which restrictions become more extensive than their objective requires." By substituting the "reasonable regulation" test, Scalia wrote that the Court intended to give the government more "leeway" to regulate commercial speech, an area of expression "traditionally subject to government regulation." [30] Quoting *Ohralik v. Ohio State Bar Association*, Scalia reiterated the Court's longstanding view that the First Amendment provides less protection to advertising than to other forms of speech: "To require a parity of constitutional protection for commercial and noncommercial speech alike could invite dilution, simply by a leveling process, of the force of the Amendment's guarantee with respect to the latter kind of speech." [31] Interestingly, the Supreme Court did not decide whether Resolution 66-156 was constitutional; instead, it ordered lower courts to reconsider the regulation under the new standard of "reasonableness."

Drawing on this legal background, we may construct the following analysis of a possible presidential ban on advertising for alcoholic beverages in *The Orion*.

(1) The "promotion of illegal activity" test: Although alcoholic beverages are legal products, advertising encourages not only responsible adults but also people under the legal drinking age --in this case, 35 percent of the Chico State student body--to consume alcohol. Unrestricted advertising for alcohol on campus is effective in reaching this under-age

population. [32] By promoting a lifestyle in which alcohol is linked with social and athletic prowess, ads for alcoholic beverages disseminate a false message which is dangerous to society.

(2) The "substantial state interest" requirement: The university, in the view of its president, is a "health care agency" which should combat alcohol abuse as possibly "the leading cause of death" among the student age-group. [33] In *Williams v. Spencer* (1980) the U. S. Fourth Circuit Court of Appeals allowed a public high school administration to scrutinize the content of its newspaper on health and welfare concerns and to block publication of advertising for drug paraphernalia. [34] Although some legal scholars have argued that public university officials must demonstrate a "compelling," not merely a "substantial," interest to justify a regulation of a university student newspaper [35], it is possible that a court would rule that a university's interest in reducing alcohol abuse among students (as a "serious impediment to the educational process" [36]) is a "compelling" state interest.

(3) The advancement-of-state's-interest requirement: Even a total ban on alcohol advertising in *The Orion* would not prevent information about alcoholic beverages from reaching the student body. However, because *The Orion* is the community newspaper read most often by the students, such a ban might well make a small contribution toward the administration's goal of limiting this information by forcing students to seek it in another newspaper.

(4) The "reasonable alternative" requirement: President Wilson stated that he was concerned that the elimination or reduction of alcoholic beverage advertising should not financially cripple *The Orion*. [37] To have eliminated all advertising that directly or

indirectly referred to alcohol would have cost the newspaper approximately 28 percent of its advertising revenue in the Fall Semester of 1989. "Consequently, less money [might have meant] an *Orion* without color, with fewer pages and fewer news stories -- in other words, an *Orion* of lesser quality." [38] Wilson's view seemed to be that the newspaper would be able to publish without the alcohol ad revenue; thus, it is possible a that a court would consider a total ban on these ads in the student newspaper to be a "reasonable" way of serving the interest of reducing alcohol abuse among students -- if the university administration could demonstrate that the ban would not impose extreme financial hardship on the newspaper.

In sum, it is possible that university regulations on alcohol advertising in the student newspaper might be constitutional, given the particular interest asserted here. This possibility was one reason that *The Orion* staff and its adviser wished to avoid an expensive and protracted legal showdown with Wilson. Instead, the staff sought a middle course: the voluntary adoption of certain restrictions on alcohol advertising, based not on win-lose predictions in the courts but on a sense of moral duty to the community.

THE ORION'S REVISED POLICY ON ALCOHOL ADVERTISING

In September 1989 a group of *Orion* editors and its faculty adviser held a series of meetings to formulate a response to President Wilson's proposal. Aware that the Task Force on Alcohol Abuse was meeting to examine the feasibility of all of the president's 12 proposals, the *Orion* group from the beginning resolved to formulate its own explicit policy, rather than be put in the position of responding to policies, decided by non-journalists, that might be inimical to the best interests of campus journalism.

The staffers began by acknowledging that President Wilson had often publicly supported the freedom of the university press; more importantly, not once during the 1988-89 academic year had the president or any other member of his administration attempted to interfere with or censor the newspaper in any way. The staff also understood that they and the newspaper are part of the community and that alcohol abuse adversely affects that community. The principal issue before the *Orion* group, then, was whether certain advertisements for alcoholic beverages may in fact pose any threat to the health of the community.

The staffers listed five major reservations about reducing or eliminating advertisements for alcoholic beverages:

(1) There is a definitional problem: What is an advertisement that "promotes alcohol abuse"? Is it a full-page ad that merely seeks product identification ("This Bud's for you!")? Is it a restaurant ad which mentions that it has a full-service bar? Is it an ad for a nightclub that specifies reduced prices on certain alcoholic drinks?

(2) Research has not established that a cause-and-effect relationship exists between exposure to alcohol-related advertising and alcohol consumption, inebriation and/or driving under the influence. Mass communication theory posits that family, friends and peer groups are much more influential than mass media in the formation of behavior and attitudes, including those related to drinking.

(3) Citizens of the United States, including university students, have the right to receive information through advertising. Public university newspapers have the same right as professional media to accept or reject advertisements for any reason. Alcoholic beverages are legal products in this country, and most mass media --including newspapers at every one of the universities in the California State University system --accept some advertising for alcoholic beverages.

(4) The elimination of alcohol advertising in *The Orion* would not mean the elimination of exposure to alcohol advertising for university students. Sources of information about alcoholic beverages are everywhere, including television, radio and other local newspapers -- some of which run ads for bars and nightclubs which are virtually identical those published each week in *The Orion.* Eliminating alcohol advertising from *The Orion* would only damage the university newspaper and enrich its competitors.

These reservations notwithstanding, the staffers conceded that certain kinds of advertising messages might well be harmful to the community.

Specifically, the staffers reasoned that cents-off coupons for alcoholic drinks and invitations to events featuring discount alcoholic beverages are primarily inducements to drunkenness and therefore are inappropriate in the newspaper. Examples of such ads published in *The Orion* of Sept. 20, 1989, are The Blue Max ad on page 2 ("Thirsty Thursday/ 35 cents well drinks at 8 p.m. going up 10 cents every 10 minutes until 9 p.m."); the Spruce Goose ad on page 3: "Margarita-ville Saturdays"; the Reddengray Pub ("Chico's No. 1 Beer Bar") on page 12 ("60-oz. domestic pitchers 8-9 p.m. Wednesdays"); and Joe's Bar on page 17 (a coupon ad for 20-ounce drinks for $1.75). (See Appendix A.)

The staff also found problematic advertisements for alcoholic beverages or for alcohol-related activities which exploit the Chico State name, logo or setting as prominent parts of the ad copy or artwork. Beer distributors frequently sponsor music and athletic events on university campuses, and they want their financial support to be recognized in advertisements in student newspapers. An example of such an ad is one for the Bud Light-sponsored women's volleyball tournament, during which free beer was given away to the first 200 entrants to check in; the ad appeared in *The Orion* on April 27, 1989. (See Appendix B.) The *Orion* group reasoned that such ads appropriate the prestige of the university for an essentially anti-educational purpose. The staff was also aware that in the fall of 1988 the University of California at Los Angeles had adopted a policy limiting use of the university's name in advertisements for alcohol-related events on campus.

The newspaper's revised ad policy, announced in an editorial on Oct. 18, 1989, said that "if the [advertising customer] insists on advertising in [these] forms, we will decline to publish the ad." [39]

Agreeing with another of the recommendations of the Surgeon General's Workshop on Drunk Driving -- that newspapers should "match the level of alcoholic beverage advertising with equivalent exposure for pro-health and pro-safety messages" [40] -- *The Orion*'s revised policy also said: "We will, as a public service, regularly publish at no charge display ads which propose moderation in alcohol consumption and/or warnings against drinking and driving." (See examples in Appendix C.)

The students predicted that the new policy would cost *The Orion* some advertising accounts; in fact, based on their erroneous assumption that Wilson had already prohibited alcohol advertisements, several alcoholic beverage distributors in the Chico area had already cancelled their insertion orders for the Spring Semester 1990. *The Orion* staff also recognized that a burden had been placed on its sales staff "of convincing certain ad customers of the social responsibility and political wisdom" of voluntarily refashioning some of its advertising messages. Nevertheless, these risks seemed acceptable to the staffers; and the revised policy went into effect -- with exceptions made for multiple-insertion contracts signed before Oct. 13, 1989 -- on Oct. 18. [41]

Administrative response to the policy was immediate and favorable. In a letter to the editor, published in *The Orion* on Oct. 25, Wilson praised the policy as "reasoned, imbued with a sure sense of values, civil and conclusive. I am persuaded of the wisdom of your policy and both impressed and gratified by the process you apparently employed in creating it." [42] On Nov. 14, the Task Force on Alcohol Abuse, in its response to all 12 of Wilson's proposals contained in the July 12 letter, endorsed *The Orion*'s policy and "commended the staff for its wisdom in promulgating it." [43] With the president's official acceptance of the Task Force recommendations on Nov. 22, [44] the institutional pressure on the newspaper came to an end.

Very importantly, *The Orion* did not lose nearly as much advertising business as it had feared it would. Certain bars and nightclubs did cancel their Spring Semester advertising, contending that the policy prevented them from promoting their businesses in the way they wished. Revenue losses from these cancellations were estimated at approximately $5,000, or about 3.5 percent of annual gross income. However, *The Orion*'s sales staff was generally successful at persuading these types of advertisers not to cancel. In some cases, the new ad copy modified the description of a popular drinking event and eliminated specific references to reduced-price drinks (see Blue Max ad for "Dance Thursday" in Appendix D). In other cases, advertisers agreed to include warnings about drinking and driving in their ads (see Scotty's Boat Landing ad in Appendix D). In at least one instance, a bar standardized the price of all its beverages sold by the pitcher (both alcoholic and non-alcoholic) and promoted this fact in its ad (see Madison Bear

Garden ad in Appendix D).

In sum, *The Orion*'s voluntary revision of its policy on alcohol advertising did not cripple the newspaper financially. The revision precluded a potential legal battle with the university administration, which might well have proved to be a Pyrrhic victory for either party. Instead, the newspaper was praised for its "responsibility and maturity" by a number of university officials. [45]

CONCLUSION

The debate about alcohol advertising aimed at young people is being waged on legal and ethical grounds. Advertisers emphasize that alcoholic beverages are legal products and that deliberate and calculating individuals have a right to know about these products. Proclaiming their social responsibility, alcoholic beverage manufacturers and the advertising industry have sponsored educational programs about alcohol abuse on campuses; they have imposed advertising guidelines on themselves; and they have run public-service ad campaigns to combat alcohol abuse. To Christians, Rotzoll and Fackler, this represents the ethical position that "Moral responsibility [for alcohol use and abuse] is owed to presumably rational individuals." [46] Opponents of alcohol advertising, on the other hand, argue that "moral responsibility is owed to socety as a whole" [47] -- that youth-oriented ads which link alcoholic beverages to a glamorized lifestyle and to social and athletic prowess are "a seductive call to potentially antisocial behavior" and ought to be banned by government, if necessary.

This paper has demonstrated how one public university newspaper found a solution to the dilemma posed by the extremes of unrestrained advertising for alcohol and possible government prohibition of this advertising. Although the changes in *The*

Orion's alcohol ads might seem to be little more than a semantic sleight of hand, the elimination of messages that specifically invite drunkenness, together with the guarantee of counteradvertising on a regular basis, represent a moral concern for university students -- young adults who are vulnerable to drinking-equals-success advertising hype. And in terms of commercial speech, *The Orion*'s new policy "hasn't caused us to lie in bed at night wondering if we'd copped out on the First Amendment," said Randy Sumimoto, editor-in-chief of the newspaper. [44] Other public university newspapers are encouraged to search, as this staff did, for the "Golden Mean" in a similar legal/ethical dilemma.

FOOTNOTES

1 "Surgeon General Bids to Ban Alcohol Ads on Campus," *Student Press Law Center Report*, Vol. X, No. 3 (Fall 1989), p. 39.

2 *Ibid.*

3 In the fall of 1989, the U. S. Senate included such sanctions in amendments to its anti-drug bill. An amendment by Sen. Phil Gramm would have withheld federally-funded or guaranteed student loans from universities which failed to "adopt and implement a comprehensive anti-drug and alcohol-abuse strategy." A second amendment, by Sens. Jeff Bingaman and Herbert Kohl, would have required universities to adopt policies that encourage their newspapers "to reject advertisements promoting irresponsible or illegal consumption of alcoholic beverages." These sanctions, however, were deleted from the Congressional anti-drug bill by a House-Senate conference committee.

4 "Many Colleges Move to Restrict Alcohol-Related Ads in Student Newspapers, Vendors' Sponsorship of Events," *The Chronicle of Higher Education*, Feb. 21, 1990, p. A40.

5 "Federal Lawmakers Threaten News Media," *Student Press Law Center Report*, Vol. XI, No. 1 (Winter 1989-90), p. 9.

6 *Ibid.*

7 *Ibid.*, pp. 39-40.

8 "Surgeon General Bids to Ban Alcohol Ads," *op. cit.*, p. 39; "Federal Lawmakers Threaten News Media," *op. cit.*, pp. 8-9.

9 See, for example, *Ohralik v. Ohio State Bar Association*, 98 S.Ct. 1912 (1978); *Bolger v. Youngs Drug Products Corp.*, 103 S. Ct. 2875 (1983); *Posadas de Puerto Rico Association v. Tourism Co.*, 106 S. Ct. 2968 (1986); and *Board of Trustees of the State University of New York v. Fox*, 109 S.Ct. 3028 (1989).

10 "Our Alcohol Advertising Policy," *The Orion*, Oct. 18, 1989, p. 22.

11 Richard McKeon, ed., *Nicomachean Ethics* in *Introduction to Aristotle* (New York: Modern Library, 1947), (1107a) p. 340. Aristotle's "principle of the mean" is used extensively as the "Golden Mean" by Clifford Christians, Kim Rotzoll and Mark Fackler in *Media Ethics: Cases and Moral Reasoning*, 2d ed. (New York: Longman, 1987).

12 Robin Wilson, letter to Paul Moore, vice president for student affairs, July 12, 1989.

13 Paula Lombardi, "Wilson Appointed New President," *The Orion*, March 26, 1980, p. 1.

14 Jim Mayer, "The Party School Fights Back," *Sacramento Bee*, Dec. 13, 1987, p. 18.

15 *Ibid.*

16 *Ibid.*

17 *Ibid.*, p. 14.

18 Robin Wilson, letter to Paul Moore, *op. cit.*

19 *Ibid.*

20 *Ibid.*

21 *Ibid.*

22 Robin Wilson, letter to Chico State University faculty and staff, Aug. 25, 1989. Wilson cited Paragraph 42352 of Title 5 of the California Code of Regulations as his authority.

23 Robin Wilson, letter to Paul Moore, *op. cit.*

24 In *Perry Education Association v. Perry Local Educators' Association*, the Supreme Court of the United States defined a "designated or limited public forum" as a place or medium which government has allowed to exist as such. 460 U.S. 37 (1983). Many lower courts have recognized that state university-sponsored newspapers are designated forums for student use. For example, in *Joyner v. Whiting* the U.S. Fourth Circuit Court of Appeals wrote that, "It may well be that a college need not establish a campus newspaper, or, if a paper has been established, the college may permanently discontinue publication for reasons wholly unrelated to the First Amendment. But if a college has a student newspaper, its publication cannot be suppressed because the college officials dislike its content." 477 F.2d. at 460. See also *Dickey v. Alabama Board of Education*, 273 F. Supp. 613 (M.D. Ala. 1967); *Antonelli v. Hammond*, 308 F. Supp. 1329, 1336 (D.Mass. 1970); *Korn v. Elkins*, 317 F.Supp. 138 (D.Md. 1970); *Thonen v. Jenkins*, 517 F.2d. 3 (4th Cir. 1975); and *Stanley v. McGrath*, 719 F.2d. 279 (8th Cir. 1983).

25 100 S.Ct. at 2351.

26 Don R. Pember, *Mass Media Law*, 5th ed. (Dubuque, Iowa: Wm. C. Brown, 1990), pp. 470-471.

27 106 S.Ct. at 2979.

28 109 S.Ct. at 3031.

29 *American Future Systems, Inc., v. State University of New York College at Cortland*, 841 F.2d 1207 (1988).

30 *Board of Trustees of the State University of New York v. Fox, op cit.*, at 3035.

31 98 S. Ct. 1912, at 1919.

32 "The Selling of Beer to Kids," *Media People* (May/June 1985), p. 8.

33 Robin Wilson, letter to Paul Moore, *op. cit.*.

34 622 F.2d. 1200 (1980).

35 Kay Beth Avery and Robert J. Simpson, "The Constitution and Student Publications: A Comprehensive Approach." 16 *Journal of Law and Education* 1, 1987.

36 Robin Wilson, letter to Paul Moore, *op. cit.*

37 Ibid.

38 "Our Alcohol Advertising Policy," *op. cit.*

39 Ibid.

40 "Surgeon General Bids to Ban Alcohol Ads," *op. cit.*

41 "Our Alcohol Advertising Policy," *op. cit.*

42 Robin Wilson, "Alcohol Advertising Policy 'Model' of Type," *The Orion*, Oct. 25, 1989, p. 20.

43 Task Force on Alcohol Abuse Final Report, Nov. 14, 1989, p. 1.

44 Robin Wilson, letter to Herman Ellis, chair, Task Force on Alcohol Abuse, Nov. 22, 1989.

45 Stephen W. King, "Editorial Accomplished Several Tasks," *The Orion*, Oct. 25, 1989, p. 20. King is the dean of the College of Communication at Chico State University.

46 Christians et al, *op. cit.*, p. 163.

47 *Ibid.*

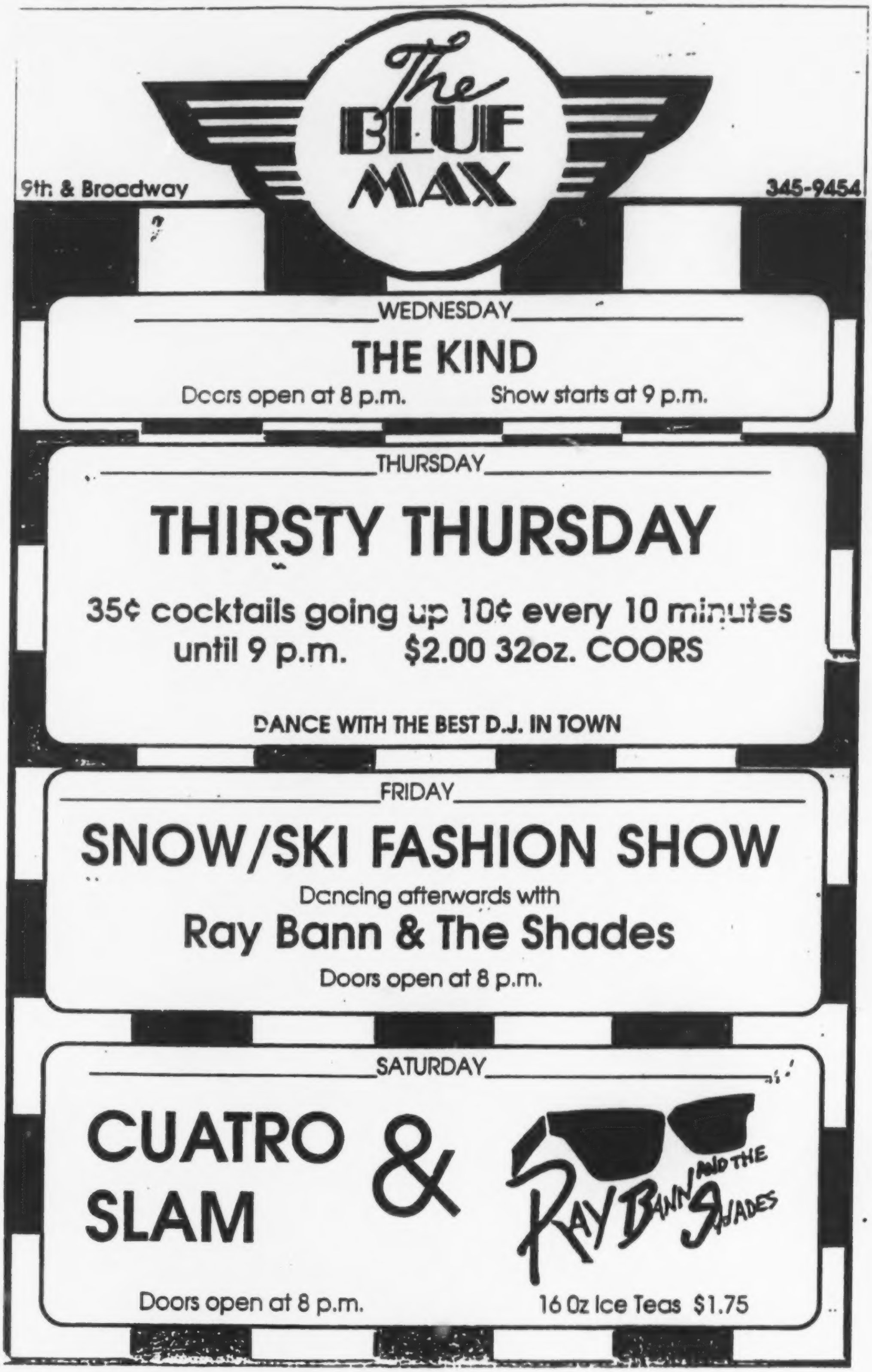
48 Interview, Nov. 10, 1989.

APPENDIX A:

Blue Max ad,

p. 2, Sept. 20,

1989, Orion.



The BLUE MAX

9th & Broadway

345-9454

WEDNESDAY

THE KIND

Doors open at 8 p.m. Show starts at 9 p.m.

THURSDAY

THIRSTY THURSDAY

35¢ cocktails going up 10¢ every 10 minutes until 9 p.m. $2.00 32oz. COORS

DANCE WITH THE BEST D.J. IN TOWN

FRIDAY

SNOW/SKI FASHION SHOW

Dancing afterwards with

Ray Bann & The Shades

Doors open at 8 p.m.

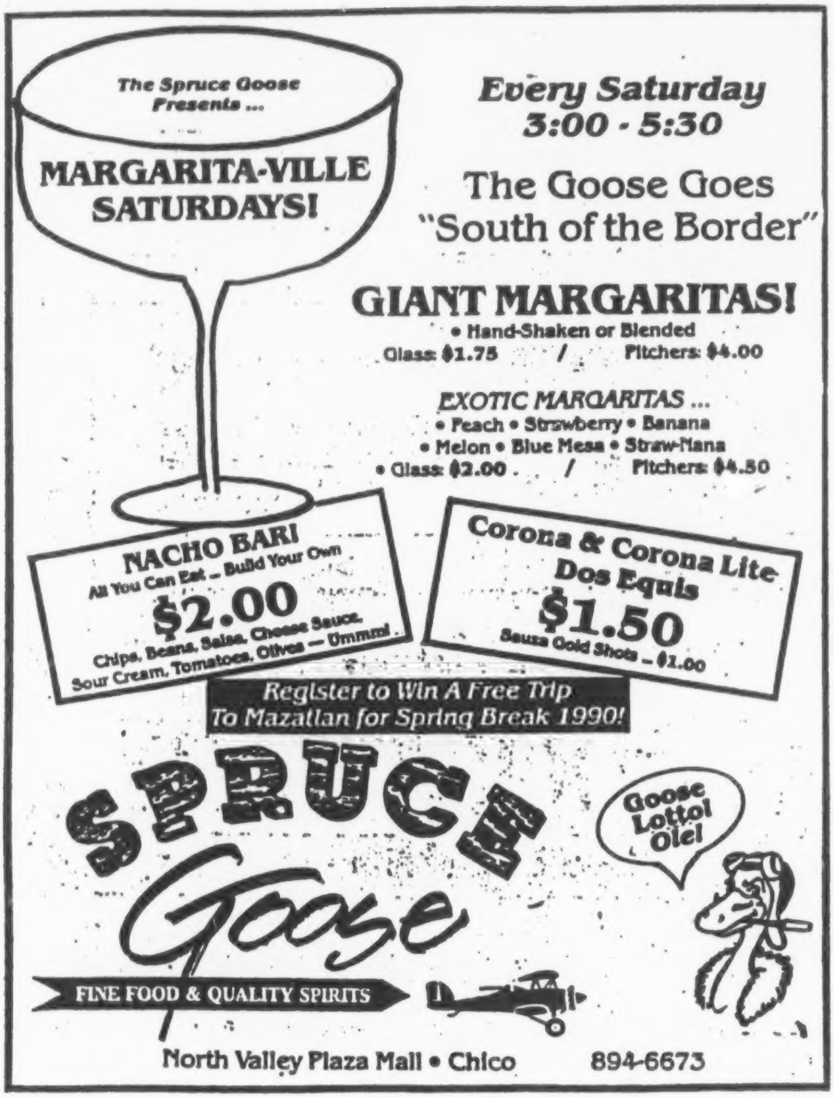
SATURDAY

CUATRO SLAM & RAY BANN AND THE SHADES

Doors open at 8 p.m.

16 Oz Ice Teas $1.75

APPENDIX A: Spruce Goose ad, p. 3, Sept. 20, 1989, Orion.



The Spruce Goose Presents ...

MARGARITA-VILLE SATURDAYS!

Every Saturday
3:00 - 5:30

The Goose Goes
"South of the Border"

GIANT MARGARITAS!
• Hand-Shaken or Blended
Glass: $1.75 / Pitchers: $4.00

EXOTIC MARGARITAS ...
• Peach • Strawberry • Banana
• Melon • Blue Mesa • Straw-Nana
• Glass: $2.00 / Pitchers: $4.50

NACHO BAR!
All You Can Eat – Build Your Own
$2.00
Chips, Beans, Salsa, Cheese Sauce,
Sour Cream, Tomatoes, Olives — Ummm!

Corona & Corona Lite
Dos Equis
$1.50
Sauza Gold Shots – $1.00

Register to Win A Free Trip
To Mazatlan for Spring Break 1990!

SPRUCE Goose

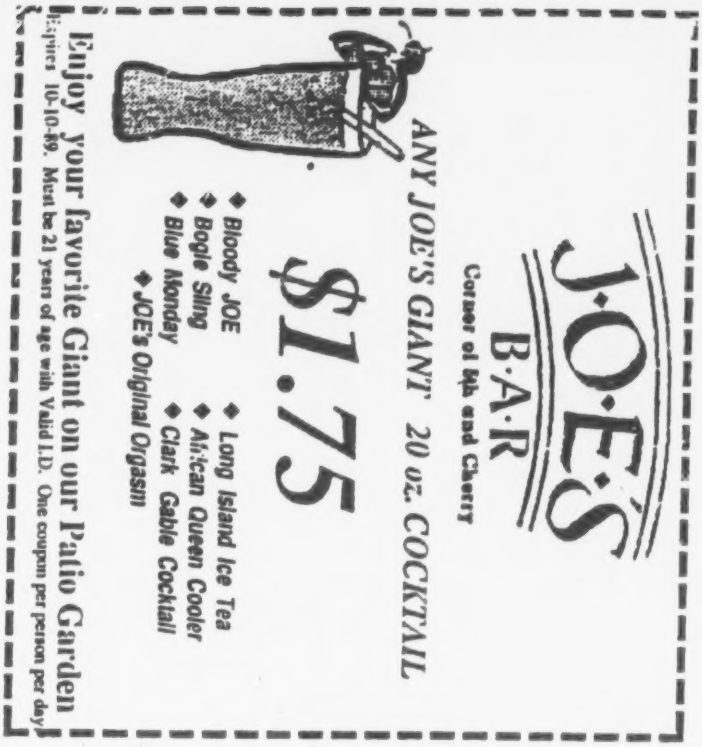
FINE FOOD & QUALITY SPIRITS

Goose Lotto! Olé!

North Valley Plaza Mall • Chico 894-6673

APPENDIX A: Joe's Bar ad, p. 17, Sept. 20, 1989, Orion.

(Below) Reddengray Pub ad, p. 12, Sept. 20, 1989, Orion.



J·O·E'S

B·A·R

Corner of 5th and Cherry

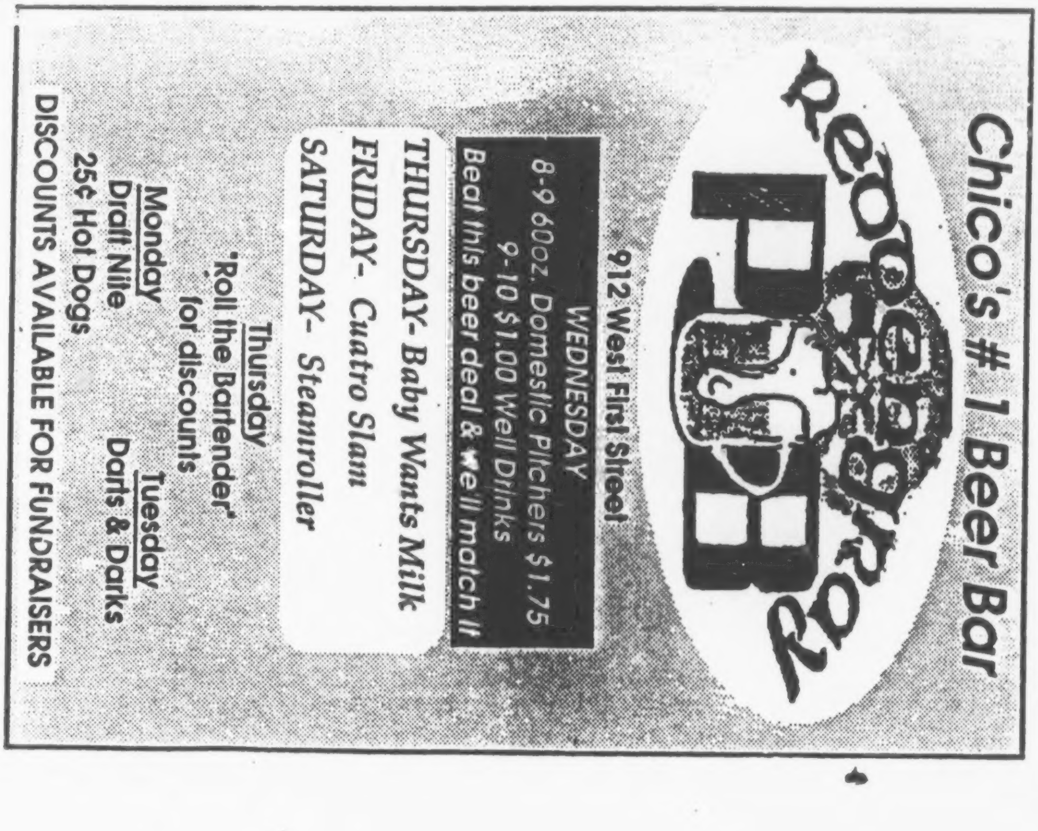
ANY JOE'S GIANT 20 oz. COCKTAIL

$1.75

- ◆ Bloody JOE
- ◆ Bogie Sling
- ◆ Blue Monday
- ◆ Long Island Ice Tea
- ◆ African Queen Cooler
- ◆ Clark Gable Cocktail
- ◆ JOE's Original Orgasm

Enjoy your favorite Giant on our Patio Garden

Expires 10-10-89. Must be 21 years of age with Valid I.D. One coupon per person per day



Chico's # 1 Beer Bar

Reddengray

PUB

912 West First Street

WEDNESDAY

8-9 60oz. Domestic Pitchers $1.75

9-10 $1.00 Well Drinks

Beat this beer deal & we'll match it

THURSDAY- Baby Wants Milk

FRIDAY- Cuatro Slam

SATURDAY- Steamroller

Thursday

"Roll the Bartender"

for discounts

Monday

Draft Nite

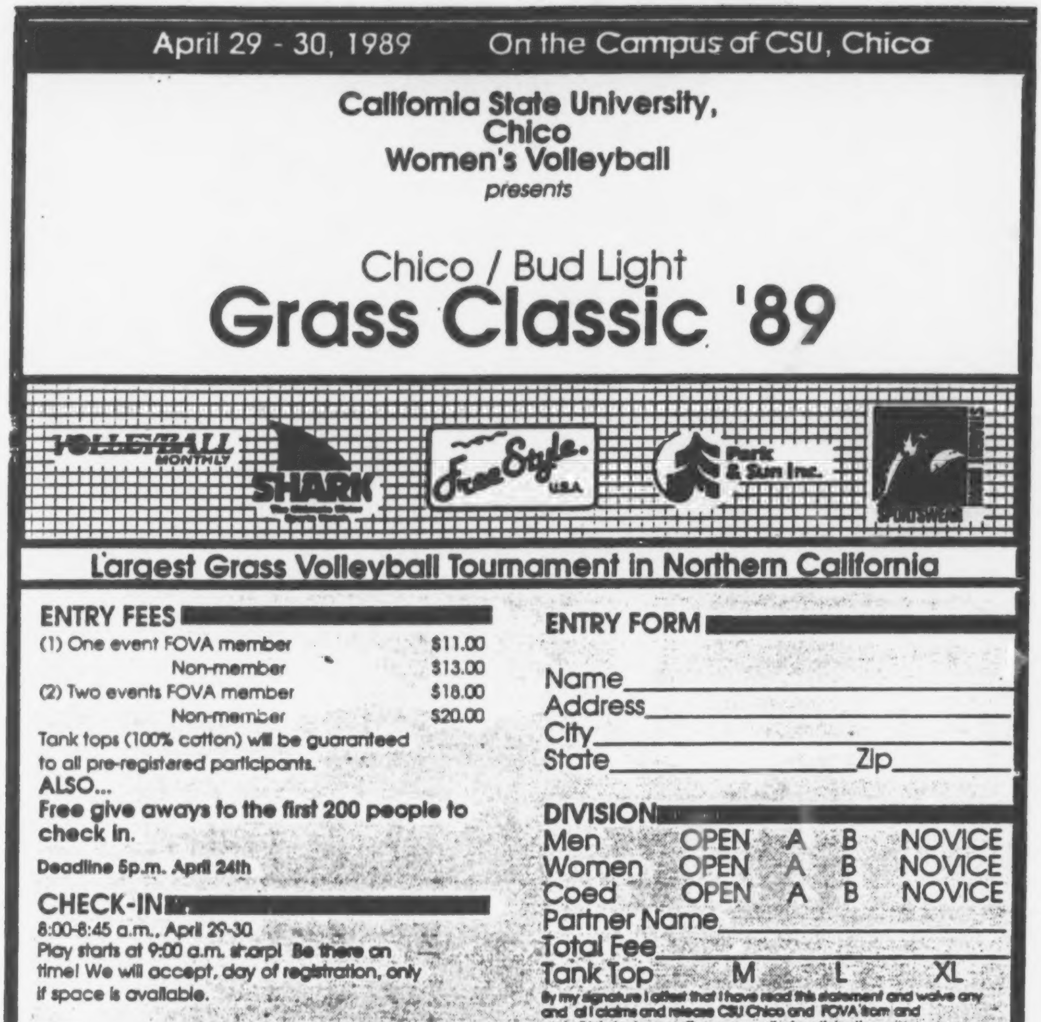
25¢ Hot Dogs

Tuesday

Darts & Darks

DISCOUNTS AVAILABLE FOR FUNDRAISERS

APPENDIX B: Chico/Bud Light Grass Classic '89 ad, p. 15, April 26, 1989, Orion.



VOLLEYBALL MONTHLY
SHARK
Free Style. U.S.A.
Park & Sun Inc.
SPORTSWEAR

April 29 - 30, 1989 On the Campus of CSU, Chico

California State University, Chico Women's Volleyball

presents

Chico / Bud Light
Grass Classic '89

Largest Grass Volleyball Tournament in Northern California

ENTRY FEES

(1) One event FOVA member		$11.00
	Non-member	$13.00
(2) Two events FOVA member		$18.00
	Non-member	$20.00

Tank tops (100% cotton) will be guaranteed to all pre-registered participants.

ALSO...

Free give aways to the first 200 people to check in.

Deadline 5p.m. April 24th

CHECK-IN

8:00-8:45 a.m., April 29-30

Play starts at 9:00 a.m. sharp! Be there on time! We will accept, day of registration, only if space is available.

SITE

On the campus of California State University, Chico (fields behind physical education dept. building).

POOL PLAY

AWARDS

- First and second place teams will receive prizes provided by:

STRAIGHT DOWN VOLLEYBALL SPORTSWEAR

ALSO...

SHARK WATCHES BY FREESTYLE
OAKLEY SUNGLASSES
SUBSCRIPTIONS TO VOLLEYBALL MONTHLY
SUNNY VOLLEYBALLS BY SPALDING
THE NETS WILL BE PROVIDED BY PARK N SUN INTRODUCING THEIR NEW LINE CALLED THE SPECTRUM
THE OFFICIAL BALL WILL BE THE "SUNNY" BY SPALDING

ENTRY FORM

Name__________
Address__________
City__________
State__________ Zip__________

DIVISION

Men	OPEN	A	B	NOVICE
Women	OPEN	A	B	NOVICE
Coed	OPEN	A	B	NOVICE

Partner Name__________
Total Fee__________
Tank Top M L XL

By my signature I attest that I have read this statement and waive any and all claims and release CSU Chico and FOVA from and and all injuries I may suffer as a result of participation in Federation of Outdoor Volleyball Association sanctioned event or competitions: and travel to and from said events and competitions. I further attest that I will take responsibility to insure that I am physically fit to to participate in said events and competitions.

Player Signature__________
Date__________
Guardian (if under 21)__________
Date__________
Call(916)895-6470 (916)345-4951

MAKE CHECKS PAYABLE TO

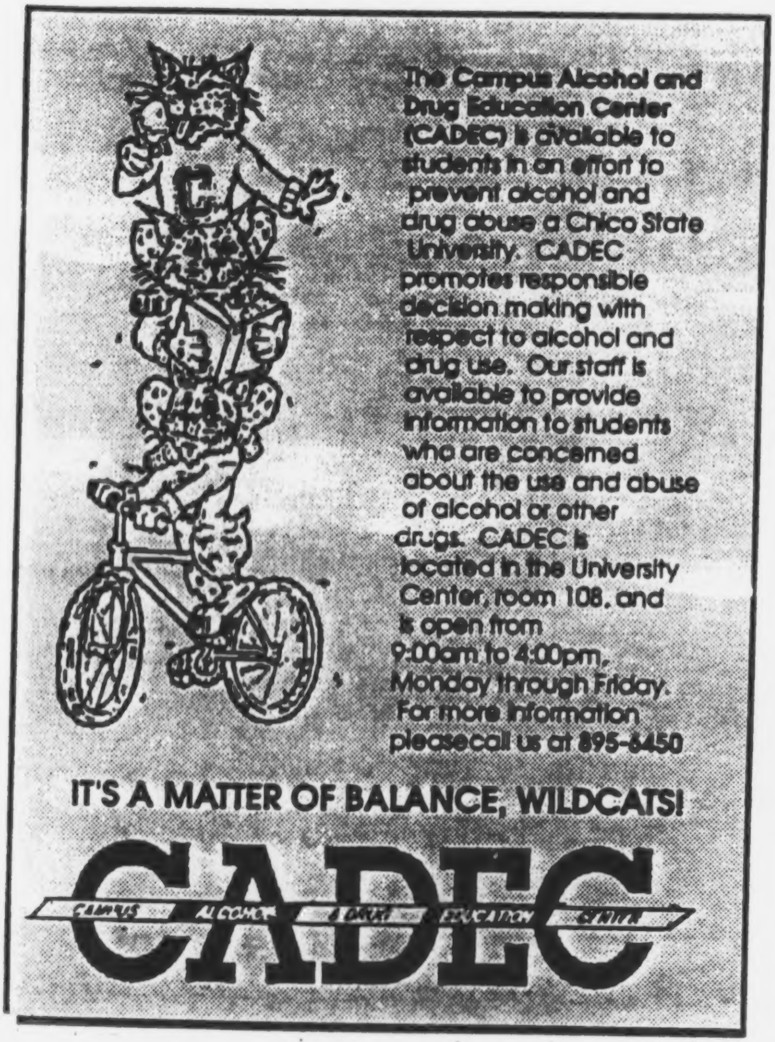
CSUC Volleyball

SEND TO

Grass Doubles
CSUC Athletics,
Chico, Ca. 95929-300

Everyone from beginners to experienced can play. Divisions for everyone!

APPENDIX C: Campus Alcohol and Drug Education Center ad, published free by The Orion, p. 4, Oct. 25, 1989.



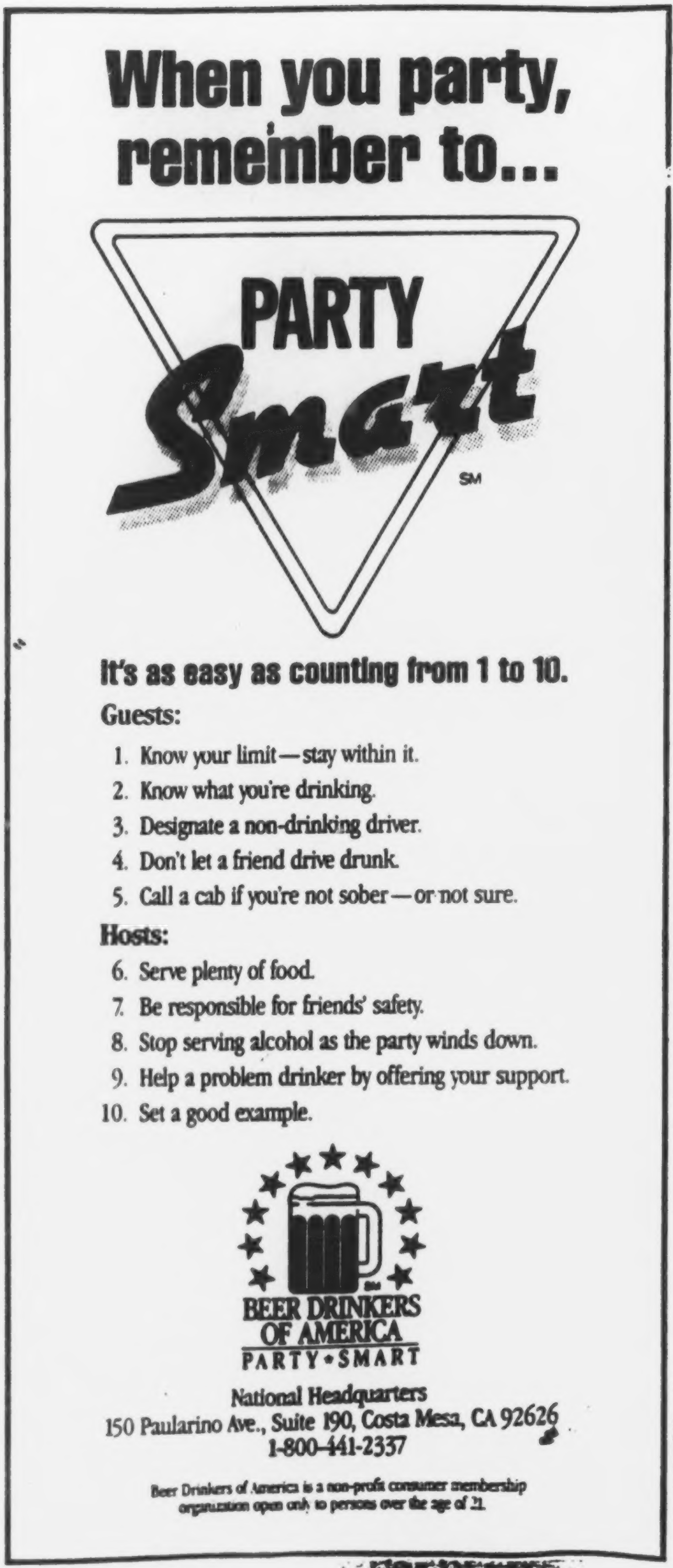
The Campus Alcohol and Drug Education Center (CADEC) is available to students in an effort to prevent alcohol and drug abuse a Chico State University. CADEC promotes responsible decision making with respect to alcohol and drug use. Our staff is available to provide information to students who are concerned about the use and abuse of alcohol or other drugs. CADEC is located in the University Center, room 108, and is open from 9:00am to 4:00pm, Monday through Friday. For more information pleasecall us at 895-6450

IT'S A MATTER OF BALANCE, WILDCATS!

CADEC

CAMPUS ALCOHOL & DRUG EDUCATION CENTER

APPENDIX C: "Party Smart" ad, published free by The Orion, p. 2, Nov. 15, 1989.



When you party, remember to...

PARTY Smart℠

It's as easy as counting from 1 to 10.

Guests:

1. Know your limit—stay within it.
2. Know what you're drinking.
3. Designate a non-drinking driver.
4. Don't let a friend drive drunk.
5. Call a cab if you're not sober—or not sure.

Hosts:

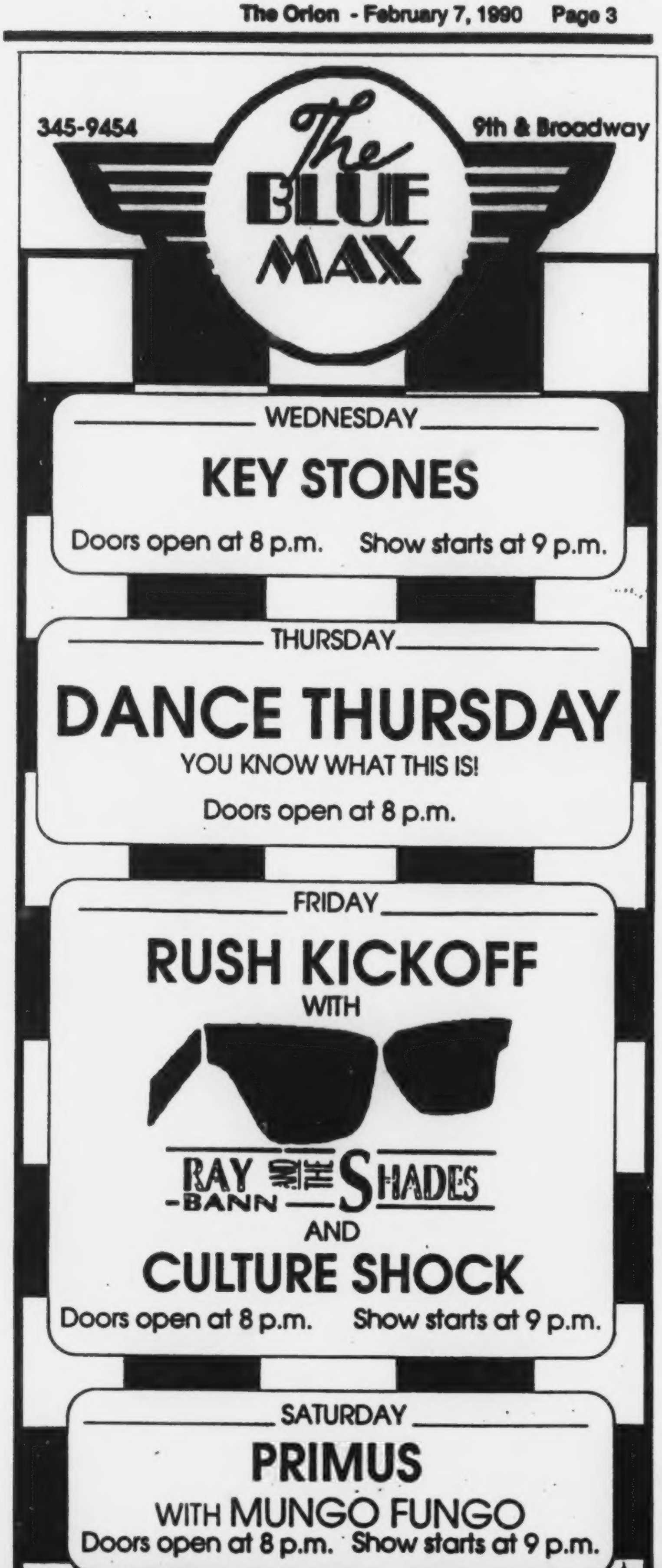
6. Serve plenty of food.
7. Be responsible for friends' safety.
8. Stop serving alcohol as the party winds down.
9. Help a problem drinker by offering your support.
10. Set a good example.

BEER DRINKERS OF AMERICA
PARTY•SMART

National Headquarters
150 Paularino Ave., Suite 190, Costa Mesa, CA 92626
1-800-441-2337

Beer Drinkers of America is a non-profit consumer membership organization open only to persons over the age of 21.

APPENDIX D: Revised ad for The Blue Max, p. 3, Feb. 7, 1990, Orion.



The Orion - February 7, 1990 Page 3

345-9454

The BLUE MAX

9th & Broadway

WEDNESDAY

KEY STONES

Doors open at 8 p.m. Show starts at 9 p.m.

THURSDAY

DANCE THURSDAY

YOU KNOW WHAT THIS IS!

Doors open at 8 p.m.

FRIDAY

RUSH KICKOFF

WITH

RAY-BANN AND THE SHADES

AND

CULTURE SHOCK

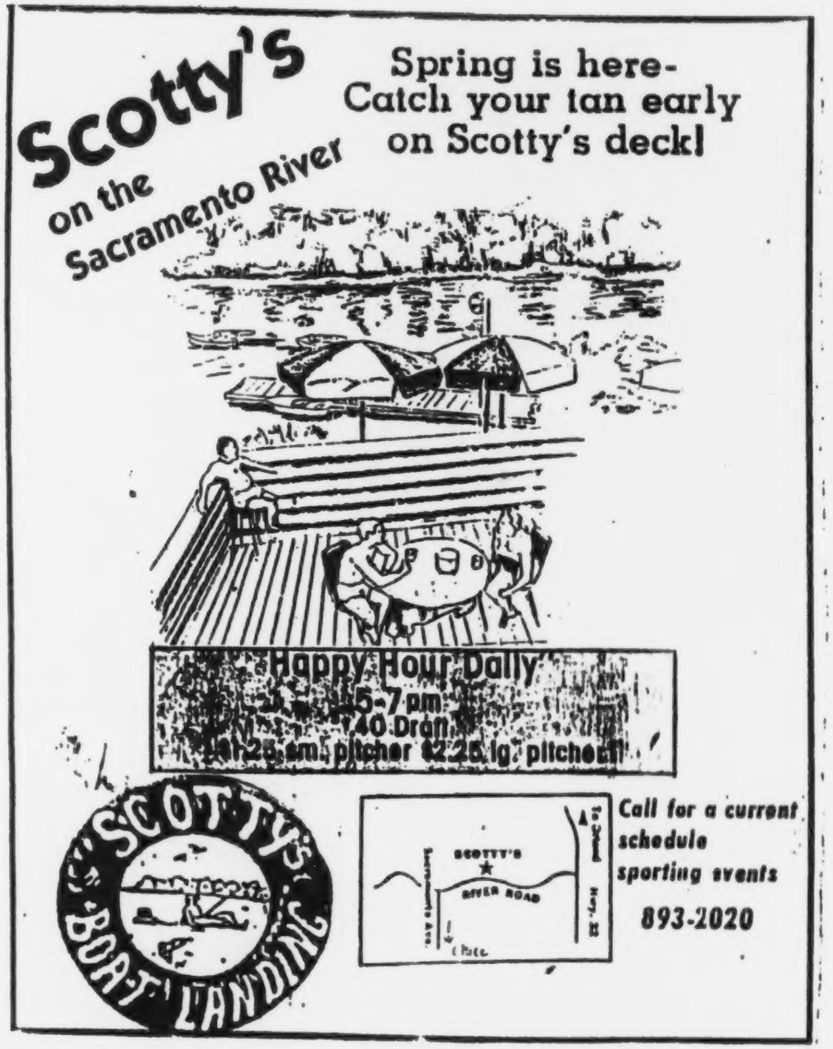
Doors open at 8 p.m. Show starts at 9 p.m.

SATURDAY

PRIMUS

WITH MUNGO FUNGO

Doors open at 8 p.m. Show starts at 9 p.m.



Scotty's on the Sacramento River

Spring is here-
Catch your tan early
on Scotty's deck!

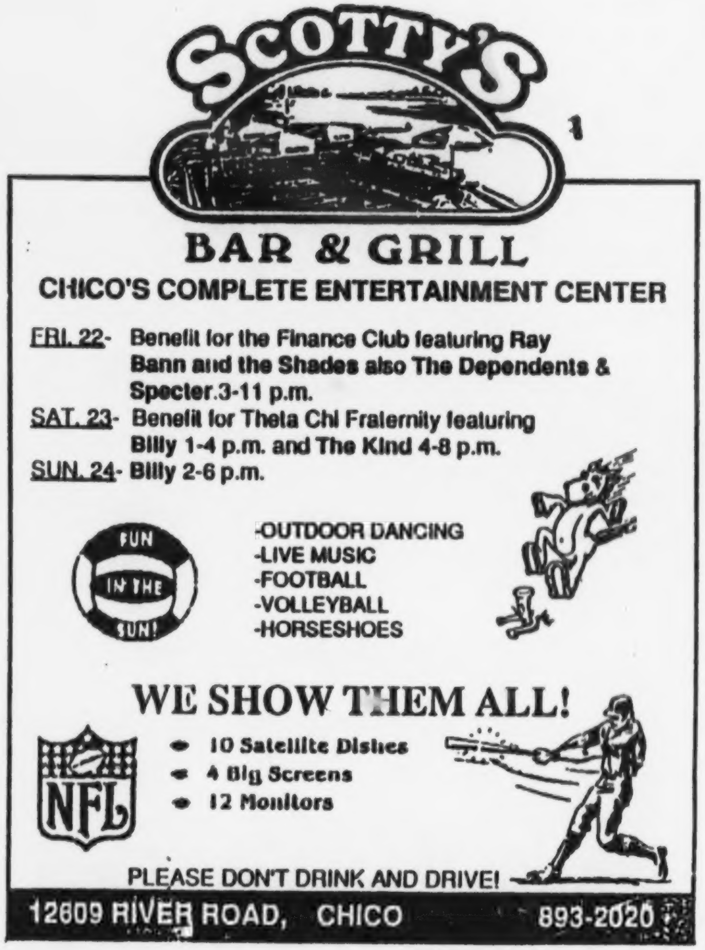
Happy Hour Daily
5-7 pm
40 Draft
$1.25 sm. pitcher $2.25 lg. pitcher

SCOTTY'S BOAT LANDING

SCOTTY'S
RIVER ROAD
Hwy. 32
Chico

Call for a current
schedule
sporting events

893-2020



SCOTTY'S

BAR & GRILL

CHICO'S COMPLETE ENTERTAINMENT CENTER

FRI. 22- Benefit for the Finance Club featuring Ray Bann and the Shades also The Dependents & Specter.3-11 p.m.
SAT. 23- Benefit for Theta Chi Fraternity featuring Billy 1-4 p.m. and The Kind 4-8 p.m.
SUN. 24- Billy 2-6 p.m.

FUN
IN THE
SUN!

-OUTDOOR DANCING
-LIVE MUSIC
-FOOTBALL
-VOLLEYBALL
-HORSESHOES

WE SHOW THEM ALL!

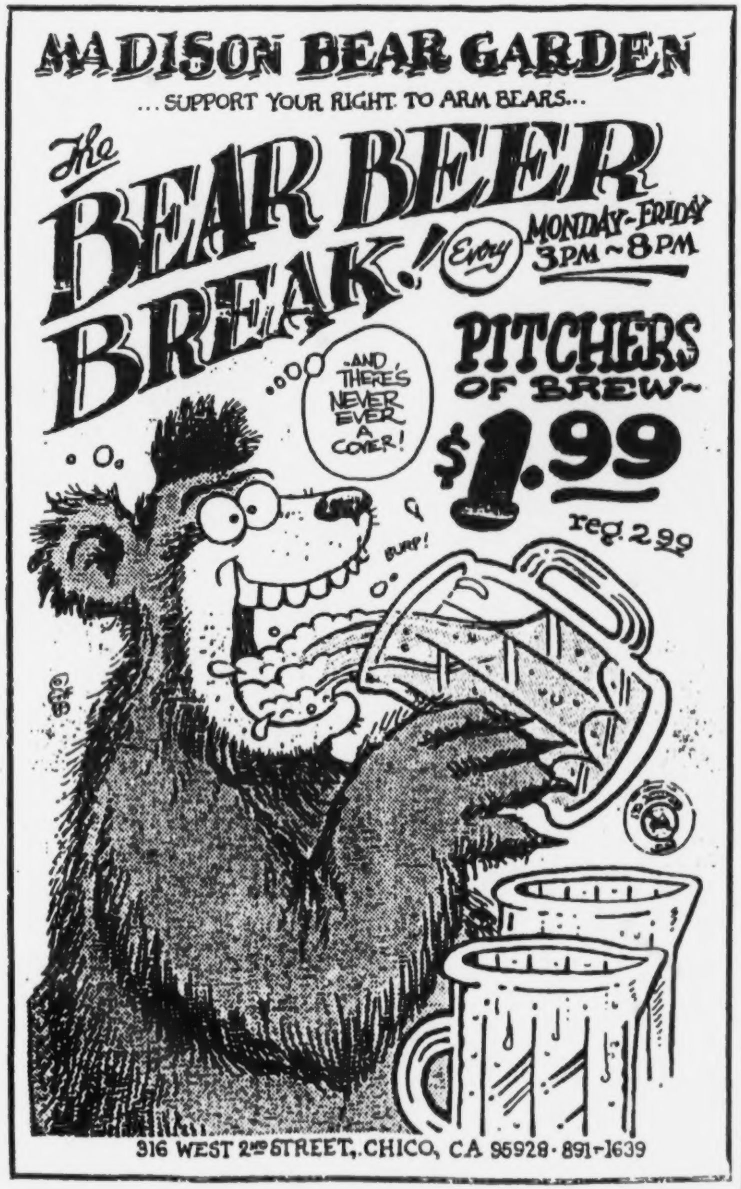
NFL

- 10 Satellite Dishes
- 4 Big Screens
- 12 Monitors

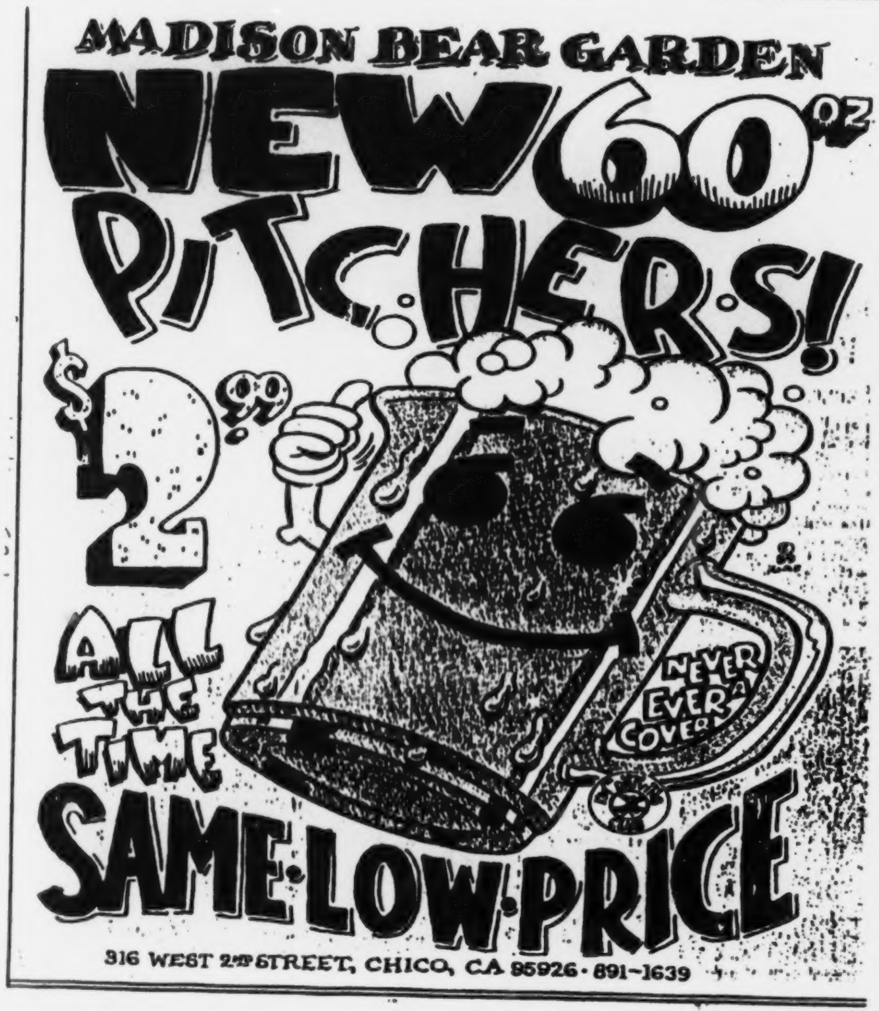
PLEASE DON'T DRINK AND DRIVE!

12609 RIVER ROAD, CHICO 893-2020

APPENDIX D: "Before" and "after" ads for Scotty's Boat Landing. Ad at top was published on April 19, 1989; bottom ad was published Dec. 13, 1989, after new ad policy went into effect.


MADISON BEAR GARDEN
...SUPPORT YOUR RIGHT TO ARM BEARS...
The BEAR BEER BREAK!
Every MONDAY-FRIDAY 3PM~8PM
...AND THERE'S NEVER EVER A COVER!
PITCHERS OF BREW~
$1.99
reg. 2.99
BURP!
316 WEST 2ND STREET, CHICO, CA 95928 · 891-1639

APPENDIX D: "Before" and "after" ads for Madison Bear Garden. Ad at left was published in The Orion 9/6/89.


MADISON BEAR GARDEN
NEW 60 OZ PITCHERS!
$2.99
ALL THE TIME
NEVER EVER A COVER
SAME·LOW·PRICE
316 WEST 2ND STREET, CHICO, CA 95926 · 891-1639

Information Sources and Drug Abuse: A Test of Mutz's Model of Issue Perceptions and Their Political Consequences

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Presented to the Communication Theory & Methodology Division of the Association for Education in Journalism and Mass Communication (AEJMC) at the annual convention, Minneapolis, Minnesota, August 9 - 12, 1990. David Weaver is Roy W. Howard Professor at the School of Journalism, Indiana University, where Jian-hua Zhu and Lars Willnat are doctoral students in mass communication. The authors appreciate the support of the Roy W. Howard chair, the Center for Survey Research, and the University Computing Services in Bloomington.

Information Sources and Drug Abuse:
A Test of Mutz's Model of Issue Perceptions
and Their Political Consequences

This study concerns the origins and political effects of people's perceptions of one social issue--drug abuse--during the fall of 1989. Like the Mutz (1989) study of unemployment, conducted in the state of Indiana during the summer and fall of 1987, this study explores what difference it makes to one's political attitudes whether a problem such as drug abuse is perceived as "your" problem, "mine" or "ours," and what kinds of information lead to these perceptions.

Whereas Mutz dealt with an economic issue--unemployment--this study concentrates on a widespread social problem--drug abuse--to see if the same patterns of relationships hold between mediated and unmediated information about this issue and perceptions of it as a problem at personal and social levels, and between these perceptions and evaluations of an incumbent political leader, the governor of Indiana.

More specifically, we examine three possible sources of information about drug abuse--people's personal experiences with it in their immediate families, the experiences of their friends and acquantances that they hear about through interpersonal communication, and mass media coverage of the drug abuse problem. We couple content analysis of newspaper coverage of this problem with survey data to document these information sources' effects on people's perceptions of their own concerns about drug abuse and on their perceptions of drug abuse as a state problem.

The Issue of Drug Abuse

We chose the issue of drug abuse for this replication of Mutz' (1989) study because we wanted to see if her findings based on the issue of unemployment could be generalized to a non-economic issue, and we wanted an issue that would be sufficiently salient that a sizable proportion of the public would be concerned about it as both a personal and a social problem.

During the period between October and December 1989, when our survey was conducted, the drug abuse situation was perceived as becoming worse during the previous year in the state of Indiana by 49 percent of the 734 persons interviewed, as compared with 10 percent who though it had improved. In addition, 40 percent said they were more worried about the drug abuse problem over the past year than before, as compared with 11 percent who were less worried, and 48 percent said they knew someone who has had problems with drug abuse during the past year. Thus there seems little doubt that drug abuse was a salient issue to the residents of Indiana during the fall of 1989. The issue was also prominently covered in five of the largest newspapers around the state during the two weeks prior to the survey interviewing, occupying 16 to 25 percent of their front page newsholes. (See Appendix B for details.)

Other opinion polls have shown that most people do not only think of drugs as an important social problem, but also believe that the drug problem has become worse over the past years. In a statewide opinion poll of 1,201 Florida residents, conducted by the Institute for Public Opinion Research at Florida International University in 1989, 69 percent of the respondents said that the problem of illegal drugs has gotten worse, 17 percent said it stayed the same and only 8.5 percent said it has gotten better (Heise et al., 1989: 21). A Washington Post-ABC News poll of 1,509 randomly selected adults nationwide in August 1989 found 44 percent naming drugs as the most important problem facing this country today, compared with 19 percent in January 1989 and 20 percent in September 1988 (Morin, 1989).

Because the press may also influence the salience of the drug issue on the public agenda, comparing media agendas to public agendas has been of interest to many communication researchers. Recent media research concerned with the coverage of drug-related issues has found that the public concern about drugs has followed the ebb and flow of media coverage. Using data from 43 Gallup polls on the "most important problem facing America today," Shoemaker, Wanta, and Leggett (1989) correlated public concern about drugs with 15 years of drug coverage in three newspapers, three television network evening shows, and three news magazines. The authors found that "the more the mass media emphasize drugs, the more the public is concerned with drugs as a problem" (1989: 79). Overall, newspaper coverage, especially of The New York Times and the Los Angeles Times, turned out to be the best predictor of public opinion. (Shoemaker et al., 1989: 72-77)

Research also shows that drug-related issues are covered in a fairly similar manner across the national media. Reese and Danielian found that newspapers, news magazines, and television newscasts covered cocaine stories in a similar way at roughly the same time in 1986 (Danielian and Reese, 1989: 42). Looking at media coverage of cocaine during 1985 and 1986, they also investigated the extent to which the overall national media agenda has been influenced by the "convergence" of individual media around cocaine stories in 1986. Defining convergence as similarities of timing, emphasis, and source selection in an issue's coverage among the mass media, Danielian and Reese (1989: 30) concluded that the media converged on the drug issue, influencing each other in both the amount and type of coverage of drugs. The results also suggested that the print media may set the agenda for the television networks and news magazines.

In short, these studies suggest that mass media have played an important role in shaping perceptions of drug abuse as a social problem, but they provide little evidence about the influences of personal experience and interpersonally mediated information on perceptions of drug abuse as either a social or a personal problem. Further, these previous studies tend to be conducted at the aggregate, rather than the individual, level. That is, they tend to measure group perceptions of drug abuse as a social problem rather than individual perceptions of drug abuse as either a social or a personal problem.

The Mutz Study

Based on two telephone surveys conducted in spring and fall of 1987, both including a random sample of 300 Indiana residents, and a content analysis of the front pages of 52 Indiana newspapers mentioned by survey respondents, Diana Mutz (1989) investigated how mediated and unmediated information about unemployment influences perceptions of this issue as a problem at personal and social levels, and how these perceptions in turn affect evaluations of incumbent political leaders. Support for incumbents and perceptions of economic conditions were measured at both state and national levels.

Proposing a general model of how people integrate information about economic conditions from the mass media, from other people, and from the experiences of their own lives to form perceptions of economic change, Mutz hypothesized that the mass media should have the strongest influence on perceptions of unemployment as a _social_ problem, while personal experiences should have the strongest influence on perceptions of unemployment as a _personal_ problem. Interpersonal communication, on the other hand, was predicted to influence both personal and social perceptions, because hearing about other peoples' economic problems can make people "more aware that the problem is shared by others and thus an important social problem, and it may also make them more worried about their own personal situations" (Mutz, 1989: 12).

Mutz found that perceptions of unemployment as a social problem have a stronger influence on evaluations of incumbents than perceptions of these issues as a problem in peoples' own lives. She also found that these social perceptions result primarily from mediated information rather than from direct experiences. Mass media were found to influence social, but not personal perceptions of the issue, while personal experiences with unemployment were found to influence exclusively personal-level judgments. Interpersonally mediated information, on the other hand, influenced both personal and social judgments.

Mutz also discovered that personal experiences with unemployment did not lead to perceptions of unemployment as a greater problem at state or national levels, except among people who acknowledged having little social-level information on employment conditions. Among this subgroup, perceptions of unemployment as a social problem were based on generalizations from personal experiences. However, "both at state and national levels it is the mass media that function to distinguish personal and social problems" (Mutz, 1989: 21).

Overall, Mutz concludes that "personal experiences, like interpersonal communication, have mistakenly been viewed as competitors of mass media influence" (1989: 22). Instead, she notes, "mass media and personal experiences may have parallel, but independent, effects on social and personal perceptions" (Mutz, 1989: 23).

Personal Experience

Mutz (1989) points out that in the case of perceptions of economic issues such as unemployment, much evidence from contemporary communication research would caution against attributing the origins of such perceptions to mass media. She argues that the key factor weakening the case for mass media effects on perceptions of economic issues is that such issues have "real world" consequences. That is, people can use personal experiences to override potential media effects (e.g., Weaver et al., 1981). Mutz also cites media "dependency theory" as minimizing the potential for media effects in situations where alternative information sources are available (Ball-Rokeach and DeFleur, 1976). And she notes the explanations for differences among issues in agenda-setting studies that are based on the "obtrusiveness" of the issue, where personal experiences are considered "superior" information sources that will diminish the influences of mass media or interpersonal communication (e.g., Tipton, Haney and Basehart, 1975; Palmgreen and Clarke, 1977; Zucker, 1978).

Based on these studies, the prediction here is that personal experience with drug abuse will contribute significantly to the perception of that issue as a personal problem, but media coverage of that issue will not.

Mass Media Influence

But Mutz acknowledges that "to the extent that political behavior is based on perceptions of collective economic conditions, mass media may still play an important role in this process." (Mutz, 1989, p. 6) That is, mass media's main effect may be on social-level perceptions. She cites McLeod, Becker and Byrnes (1974) and Becker, McCombs, and McLeod (1975) as noting that mass media are typically found to have a greater impact on people's perceptions of the collective salience of issues than on the salience of the issues to individual persons. In other words, because a person has seen a great deal of news concerning some issue does not mean that this person would perceive the issue as important personally, but the person would be likely to think that the issue is important to others, and thus an important social issue.

Mutz also notes that such patterns have been found in other areas of research on media effects, including studies of media coverage of crime that find such coverage influencing perceptions of crime as a social problem, but not as a personal one (Tyler, 1980; Gordon and Heath, 1981; and Skogan and Maxfield, 1981). Another kind of media effects research based on the "third person effect" hypothesis has suggested that a major effect of media exposure may be to influence people's perceptions of what others think regardless of whether such exposure influences what individuals themselves think (Mutz, 1987; Hur and Robinson, 1978; Cohen, Mutz, Price and Gunther, 1988).

As Mutz notes, these studies suggest that even though an issue may be relatively obtrusive, as are most economic issues, mass media may still have influence on perceptions of these obtrusive issues as social problems, if not as personal ones. These studies lead to the prediction that greater exposure to media coverage of the drug abuse issue will lead to greater concern over that issue as a social problem, but not as a personal problem.

Interpersonal Communication

Information is conveyed not only through media reports or direct experiences, but also through structured patterns of social interaction. Because interdependent individuals often exchange interpretations of social events, information processing may be understood in terms of individuals tied together by, and located within, networks, groups, and other social formations that largely determine their opportunities for the exchange of meaningful information (Eulau 1986).

In his review of interpersonal communication channels, Chaffee (1986) concludes that the accessibility of a channel and the likelihood of finding desired information through it are the main determinants for our choices of source of information. Chaffee argues that "when we seek information it is often for corroboration or comparison with prior constructions of reality, and we seek it through those channels that are most accessible to us and are likely to have something additional to say on the subject. Whether these are media or interpersonal channels depends largely on the topic, timing, and immediate accessibility." (Chaffee, 1986: 75-76) He concludes that "the more people talk with one another about information from the mass media, the greater is the total impact of the media on social action." (p. 76).

As mentioned earlier, Mutz (1989) found that interpersonally mediated information predicted both perception of unemployment as a personal and as a social problem, reinforcing the effects of both personal experience and media coverage as she had predicted, but more strongly than her original model suggested. Her findings are consistent with Chaffee's view that interpersonal communication is likely to reinforce, rather than override, the influence of mass media. But can this finding be generalized to an issue such as drug abuse that seems to be more obtrusive and a more serious social threat than unemployment?

The prediction here, based on the literature reviewed above, is that interpersonally mediated information will influence the perception of drug abuse as both a personal and a social problem.

Hypotheses

The predicted relationships between the three different kinds of information sources reviewed above (personal experience, mass media, and interpersonal discussion), the perceptions of drug abuse as a personal and a social problem, and the political consquences of these perceptions are depicted in Figure 1. Following Mutz's findings for the issue of unemployment and the related studies discussed above, we predict that personal experience will be a positive and significant (at the .05 level) predictor of perceptions of drug abuse as a personal problem, that mass media exposure will be a positive and significant predictor of perceptions of drug abuse as a social problem, and that interpersonally mediated information will significantly predict perceptions of drug abuse as both a personal and a social problem. We also predict that increased concern about drug abuse as a social problem, but not as a personal problem, will be significantly related to evaluation of the incumbent governor of Indiana.

Figure 1 About Here

Method

For the purpose of replication, we tried to design our study to be as similar to Mutz's as possible. As in Mutz's study, the public's evaluation of the incumbent governor is our ultimate dependent variable, and public perceptions of the issue (unemployment in Mutz's and drug abuse in ours) as a social problem as well as a personal problem form two intervening variables. Three sets of predictors of issue perceptions are hypothesized: personal experience (or unmediated information), interpersonally mediated information, and mass mediated information. All of them were measured in our survey. Finally, several demographic variables were measured for controlling in the later analysis. (For a description of the wording of these questions, see Appendix A.)

Some modifications to Mutz's design were made. First, as stated before, we used drug abuse to replace unemployment as the central issue for the study. Second, while Mutz examined public evaluation of incumbents at both the national and the state levels, we asked respondents only about their opinion of the state governor. Third, after a preliminary analysis of the newspaper coverage of drug abuse, we decided not to follow Mutz's procedure of combining survey questions and newspaper content analysis into a measure of exposure to the mass media; instead, we simply used survey questions as the measure of media exposure. (See Appendix B.) Finally, we added questions on people's exposure to television news, and their attention to the drug abuse stories that appeared in newspapers and on television, assuming that these additional questions might better measure the way people learn drug-related stories from the media.

The data for this replication study come from a survey of Indiana residents, the same population from which Mutz's sample was drawn. We commissioned the Indiana University Center for Survey Research to include our research questions in its semiannual Indiana Poll. Telephone numbers were randomly generated through the Waksberg/Mitofsky random digit dialing method. At each residential telephone number, an adult over 18 was selected to be interviewed, using the Carter/Trodahl/Bryant procedure. The actual interviews took place between October and December 1989. The completion rate for this survey was 62 percent, with 734 cases total. Female respondents accounted for 54.2 percent of the sample, as compared to 51.5 percent in the population[1]. The 2.7 percent oversample of women in our study falls within the sampling error range of plus or minus three percent.

Findings

Following Mutz's paper, the presentation of our results proceeds in four parts. First, the direct, additive effects of perceptions of drug abuse on evaluation of incumbent are calculated using ordinary least squares (OLS) regression. Next, the origins of personal and collective perceptions of the drug abuse issue are examined. Third, the reciprocal link between perceptions of drug abuse at the personal and the social levels is examined using two-stage least squares (2LS) to examine influences on personal and social-level perceptions simultaneously. Finally, the findings are assembled into a general model for comparison with what Mutz obtained from her data.

Direct effects on incumbent evaluation. Mutz argues that party identification has a direct effect on approval of incumbents. This is supported by our data. As column 1 in Table 1 shows, Democrats were more likely to approve of Evan Bayh, the Democratic governor of Indiana, whereas

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[1] This is a 1984 figure, which is the latest available. See U.S. Bureau of the Census: County and City Data Book: 1988. Washington, D.C.: U.S. Government Printing Office, 1988. p.2.

Republicans were slightly more likely to disapprove of his performance. This finding is consistent with Mutz's 1987 data, which were gathered under a different state administration headed by Republican Governor Robert Orr.

However, our study does not confirm a major hypothesis proposed by Mutz -- that perceptions of an issue at the social level have a strong direct effect on approval of incumbents, whereas perceptions of the issue at the personal level have a somewhat weaker effect. As column 1 in Table 1 shows, perceptions of drug abuse as a social problem have ~~almost~~ no effect on the evaluation of the governor of Indiana. The same is true for perceptions of drug abuse as a personal problem.

One explanation for this finding would be that the drug abuse issue is not as directly linked to government policy by people as is the economic issue of unemployment. There may be a perception that drug abuse is more a matter of individual choice and responsibility than is unemployment. Another possibility might be that the variation in approval of incumbent was less in 1989 than in 1987, which could cause a weaker relationship for the former. Evan Bayh is the first Democratic governor of Indiana since 1968 when Democrat Roger Branigin was defeated by Republican Edgar Whitcomb. When our survey was conducted in the fall of 1989, a year after his election, Bayh was generally popular among the constituents. Fifty-three percent of those in our sample "strongly" approved and 26 percent "somewhat" approved of Bayh. In other words, about four out of five people in the state were in favor of him, which leaves little room for variance in his approval rating.

Table 1 About Here

Origins of issue perceptions. Though perceptions of drug abuse as a social and a personal problem do not directly affect approval of the incumbent in our study, it is still worthwhile to examine which sources of information contribute to public perceptions of the drug abuse issue. Mutz proposes that the perceptions of an issue are influenced by two sources: perceptions of the issue at a different level, and information regarding the issue. For the relationship between issue perceptions at the social level and at the personal, she posits a reciprocal influence -- that is, perceptions at the social level can be generalized into perceptions at the personal level, as well as the other way around.[2] For the effects of information, Mutz identifies three forms of communication: personal direct experience, interpersonally mediated information, and mass media mediated information. She further proposes that (1) personal experience has the strongest effect on issue perceptions at the personal level, (2) mass media have the strongest effect on perceptions at the social level, and (3) interpersonal communication has a moderate impact on perceptions at both the social and the personal levels.

While we find supporting evidence for the hypothesis that perceptions at different levels influence each other, we fail to confirm the the impact of three sources of information on issue perceptions at two levels. As columns 2 and 3 in Table 1 indicate, subjective evaluation of drug abuse as a personal problem is the strongest predictor of the subjective evaluation of drug abuse as a social problem, and vice verse. In other words, the more an individual worries about drug abuse in his or her personal or family life, the more the person sees the drug abuse situation as becoming worse in the state; or the worse the person believes drug abuse is getting in the society, the more he or she is concerned about the same problem in the private setting. In Mutz's terms, this is a generalization process of perceptions at different levels.

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[2] She later refines this relationship into an one-way path -- only social-level perceptions influence personal-level perceptions, not the other way around -- based on the empirical testing from a 2LS procedure. This will be discussed in the next section.

However, mass media mediated information does not contribute to perceptions of drug abuse as a social problem, as Mutz hypothesizes. Nor does personal experience affect perceptions of drug abuse as a social problem. The case becomes more compelling when we add three new media measures: exposure to television news, and attention to newspaper and television news about drug abuse. As indicated in column 2 in Table 1, none of the four media variables has a significant effect on issue perceptions at the social level. On the other hand, attention to newspaper coverage of drug abuse does affect perception at the personal level. This relationship is neither predicted by Mutz, nor easily explained by common sense. It seems likely, however, that concern over drug abuse at the personal level might lead to paying more attention to newspaper stories about drug abuse, rather than vice versa.

Finally, interpersonally mediated information is found to play a significant role in perceptions of the drug abuse issue at both the social and personal levels. In contrast, the effect of interpersonal communication in Mutz's data was found to be moderate on social-level perceptions of unemployment, but not consistently significant on personal-level perceptions.

Reciprocal influences. The OLS treatment of the predictors of perceptions of drug abuse as a social problem as well as a personal problem is open to challenge because there is reason to believe the two issue perception variables are reciprocally related. If that is the case, then a 2LS procedure is more appropriate to remove the feedback effect of one kind of perception as the dependent variable from the other kind of perception as a predictor.

Based on the results from OLS regression as mentioned above, Mutz uses two instrumental variables to obtain the estimation of the perception variables. Personal experience is treated as the instrumental variable uniquely identifying perceptions of unemployment as a personal issue, whereas exposure to newspaper coverage is treated as the instrumental variable uniquely identifying perception of unemployment as a social problem. It turns out that personal-level perceptions, as estimated by personal experience, significantly influence social-level perceptions, but not the other way around.

We replicated this procedure but cannot confirm the one-way influence from perceptions at the personal level to perceptions at the social level. As Table 2 shows, the contribution from both directions is not statistically significant. Relatively speaking, perception of drugs as a social issue is closer to significance (at the .10 level) as a predictor than perception of drugs as a personal problem. This is, of course, a tentative finding, and also contrary to Mutz's finding.

Table 2 About Here

It is not surprising to see that the two perception variables are in fact independent from each other, given the fact that the correlations between the estimated variables and the instrumental variables in our data -- i.e., exposure to the media for social-level perceptions, and personal experience for personal-level perceptions -- are close to zero. An alternative strategy for 2LS is to use the variables that are found in the previous OLS to be significantly related to the perception variables as instrumental measures. This is not applicable in our case, however, because according to this method we should use interpersonal communication as the instrumental variable for both perception variables, which would give an identical estimation for the two variables.

An overall test of Mutz's general model. To summarize the data presented above, we present our findings regarding the drug abuse issue in Figure 2 to compare to Mutz's findings regarding the unemployment issue at the state level in Figure 1. It is clear that while the impact of interpersonally mediated information on perceptions of drug abuse at both levels (personal and social) remains significant, all the other paths of effect in the Mutz model disappear from our model.

Figure 2 About Here

Conclusions

Several explanations may be offered for these striking differences. Essentially, we speculate that the difference mainly stems from the different characteristics of the two issues under investigation.

While providing job opportunities has been traditionally viewed as a major function of state government, drug abuse as a recent issue has been more related to the federal government. The August 1989 Washington Post-ABC News poll of 1,509 randomly selected U.S. adults mentioned earlier found 76 percent saying that federal government spending for the anti-drug program should be increased (Morin, 1989). Had we probed public approval of the president of the U.S. in our survey, we might have found some political consequences from the concerns over drug abuse at the social level and perhaps at the personal level.

Why is interpersonal information more important than any other source of information in predicting perceptions of drug abuse? The answer probably lies mostly in the nature of the drug abuse issue. Drug abuse is obtrusive for about half of the residents of Indiana (48 percent in our survey claim to have known someone who has had problems with drug abuse during the past year) compared to more than 20 percent in Mutz's study who reported either themselves or someone in their family as personally affected by unemployment during the past year (Mutz, 1989: 27). Also, drug abuse is likely to be regarded as a more serious problem than unemployment (76 percent in the August 1989 Washington Post-ABC News poll (Morin, 1989) favored increased federal spending on the anti-drug program compared with 30 percent who favored increased spending on unemployment insurance), and a problem that is social rather than economic--and therefore not as easily linked to specific government policies, especially not state government policies.

In this particular situation, mass media information may be regarded as less important than interpersonal communication because the media information tends to focus on national trends and distant events, whereas interpersonal information probably focuses much more on the local situation and specific persons. The same could be said for the issue of unemployment, although media coverage of unemployment is often much more local (county by county comparisons are common, as well as statewide figures) and unemployment is not generally regarded as a such a serious social threat as is drug abuse.

Whatever the explanations, it is clear that Mutz's (1989) general model of information sources, issue perceptions, and their political consequences does not apply equally well to all issues. It may be more appropriate for only economic issues such as unemployment. Perhaps if we had chosen another economic issue such as the federal budget deficit our results would have more closely matched hers. Further testing with different kinds of issues should be carried out to test the generalizability of her intriguing model and to learn more about the influences of different kinds of information sources on issue perceptions, and the influence of these perceptions on how people evaluate political leaders.

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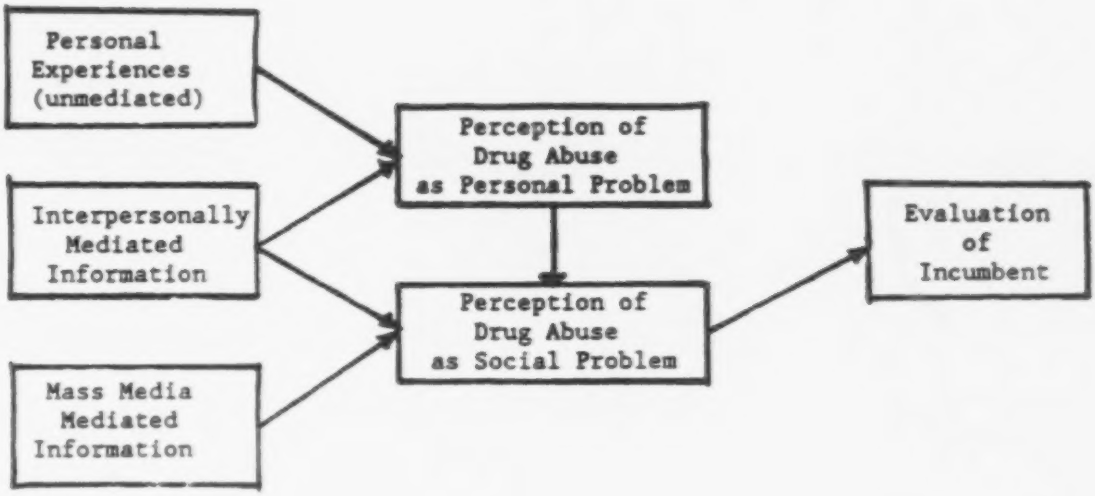
FIGURE 1*

Predicted Relationships Between Information Sources, Perceptions of Drug Abuse, and Evaluations of Incumbent


Personal Experiences (unmediated)
Interpersonally Mediated Information
Mass Media Mediated Information
Perception of Drug Abuse as Personal Problem
Perception of Drug Abuse as Social Problem
Evaluation of Incumbent

---

* The prediction paths are based on Mutz's (1989) findings for the issue of unemployment at the state level.

Table 1
Predictors of Approval of Incumbent and of Perceptions of Drug Abuse: Ordinary Least Squares[1]

Predictors	Dependent Variables Approving Incumbent	 Social-level Perceptions	 Personal-level Perceptions
Subjective Evaluations of Drug Abuse			
Social Problem	.03	n.a.	.18***
(improved)	(.73)		(4.70)
Personal Problem	.01	.20***	n.a.
(less worried)	(.28)	(4.70)	
Sources of Information			
Personal Experience	-.07	.02	.04
	(1.60)	(.57)	(1.10)
Interpersonal Information	.01	.12**	.18***
	(.13)	(2.75)	(4.37)
Exposure to Newspaper	-.01	.01	-.00
	(.24)	(.18)	(.07)
Exposure to Television	.05	.01	-.02
	(1.09)	(.18)	(.46)
Attention to Newspaper	.00	.03	.16**
	(.08)	(.50)	(3.42)
Attention to Television	.00	-.01	.05
	(.04)	(.21)	(1.14)
Community Context	-.08	-.03	-.00
(metropolitan)	(1.96)	(.74)	(.09)
Part Identification			
Republican	-.08	.11*	.06
	(1.74)	(2.40)	(1.29)
Democrat	.20***	.06	.00
	(4.48)	(1.40)	(.08)
Demographic Controls			
Age	n.a.	.05	.06
		(1.00)	(1.43)
Gender (female)	n.a.	.10*	-.03
		(2.35)	(.85)
Income	n.a.	.02	.08
		(.39)	(1.84)
Education	n.a.	-.01	.01
		(.17)	(.17)
Adjusted R^2	.06	.08	.15

[1] Entries are standardized betas with t-values in parentheses.

[2] Approval of incumbent is a 5-point scale with higher values indicating a more favorable rating of the governor of Indiana. Social-level perceptions is a 5-point scale with higher values indicating the opinion that drug abuse in the state is getting worse. Personal-level perceptions is a 5-point scale with higher values indicating more concern about drugs in private life.

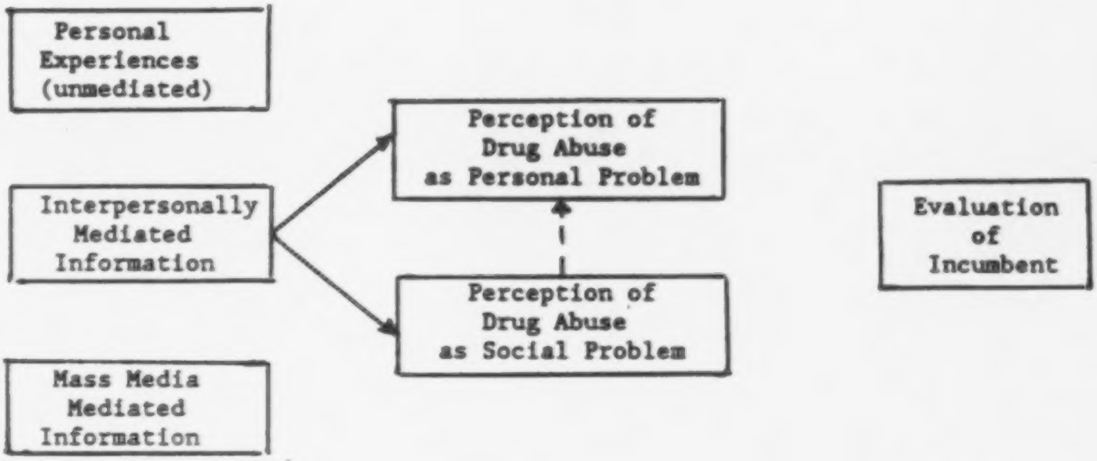
Table 2
Reciprocal Influences Between Perceptions of Drug Abuse as a Personal and a Social Problem: Two-Stage Least Squares[1]

Independent Variables	Dependent Variables	
	Personal Problem	Social Problem
Personal Problem	n.a.	.94 (s=1.52) (p=.50)
Social Problem	2.41 (s=1.46) (p=.10)	n.a.

[1] Entries are unstandardized betas from simultaneous equations using all exogenous variables in the general model as predictors (see Table 1). Standard errors and significance probability are in parentheses, respectively. Personal experience is the instrumental variable uniquely identifying Personal Problem, and Newspaper Coverage is the instrumental variable uniquely identifying Social Problem. Perceptions of drug abuse as a personal and a social problem are all coded so that a high score represents more concern.

FIGURE 2*

Summary of Findings


Personal Experiences (unmediated)
Interpersonally Mediated Information
Mass Media Mediated Information
Perception of Drug Abuse as Personal Problem
Perception of Drug Abuse as Social Problem
Evaluation of Incumbent

---

* The solid lines indicate a path at the significance level of .05, whereas the broken line indicates a path at .10.

Appendix A

Wording of Survey Questions

Approval of Incumbent Administration
"Overall, do you approve or disapprove of the way Evan Bayh is doing his job as governor of Indiana?" Coded on a 5-point scale ranging from "Strongly disapprove" (1), to "Strongly approve" (5).

Drug Abuse as a Social Problem
"Would you say that over the past year the drug problem (in Indiana) has improved, stayed about the same or become worse?" Coded on a 3-point scale from "Improved" (1), to "Stayed about the same" (3), and "Become worse" (5).

Drug Abuse as a Personal Problem
"Over the past year, have you been less worried about drugs (for you or people in your family), more worried about drugs, or have things stayed about the same?" Coded on a 5-point scale from "A lot less worried" (1), to "A lot more worried" (5).

Interpersonally Mediated Experience with Drug Abuse
"How often do other people talk to you about the problem of drug addiction?" Coded on a 5-point scale from "They do not talk to me" (1) to "Five or more times a week" (5).

Personal Direct Experience
"In the past year have you known anyone who has had problems with drug abuse?" "Yes" recoded as (1) and "No" as (0).

Exposure to Newspapers
"About how many days in the past week did you read a newspaper?" The score ranges from "None" (0) to "Everyday" (7).

Attention to Newspapers
"About how much attention do you pay to stories about drug abuse when you read a newspaper?" The score ranges from "No attention at all" (1) to "Close attention" (4).

Exposure to Television
"About how many days in the past week did you watch TV news?" The score ranges from "None" (0) to "Everyday" (7).

Attention to Television
"About how much attention do you pay to stories about drug abuse when you see them on TV news?" The score ranges from "No attention at all" (1) to "Close attention" (4).

Community Context
Coded by interviewer as "Metropolitan county" (1) or not (0).

Appendix A (cont'd.)

Party Identification
"Generally speaking, do you think of yourself as a Democrat, Republican, Independent, or something else?" Two party identification measures were created representing whether respondent was Republican (1) or not (0), and Democrat (1) or not (0).

Age
"In what year were you born?" The year of birth was recoded into "Under 30" (1), "30-44" (2), "45-64" (3), and "65 and above" (4).

Gender
Coded by interviewer as "Female" (1) and "Male" (0).

Education
"What is the highest grade of school or level of education you have completed?" The year of schooling was recoded into "Less than high school" (1), "High school graduate" (2), "Some college/vocational school" (3), "College graduate" (4), and "Post graduate" (5).

Income
"Considering all sources of income and all salaries, was your household's total income in 1988, before taxes and other deductions, less than $25,000, or more than $25,000? Less than $35,000 or more than $35,000? More than $50,000?" Recoded into "Under $15,000" (1), "$15-24,000" (2), "$25-34,000" (3), "$35-50,000" (4), and "$50,000 and above" (5).

Appendix B

Decision on Content Analysis of Newspaper Coverage

In her design, Mutz created the media exposure variable by multiplying the frequency of reading a daily newspaper, as measured by a survey question, with the emphasis (space and prominence) of the newspaper's coverage of unemployment from a content analysis. Similarly, we asked the respondents in our survey how many days in the past week they read a newspaper, and which paper they read most often. Before coding the emphasis of drug abuse coverage for more than 50 newspapers that the respondents named, we selected five major papers in the state to see if the reporting of drug abuse varied significantly from paper to paper. The selected newspapers included The Indianapolis Star circulating in central Indiana, the Gary Post-Tribune in the north, the Louisville Courier-Journal in the south, The News Sentinel (Fort Wayne) in the northeast, and The Tribune-Star (Terre Haute) in the west.

To check the coverage emphasis, we first counted the paragraphs for all the drug related stories appearing on the front page of the five newspapers in a two-week period prior to the interview. Then we derived a measure of drug-coverage emphasis by dividing the number of drug-story paragraphs by the total front page paragraphs. We did not code the drug related stories into positive/negative categories, as Mutz did for unemployment coverage, because virtually all of the drug abuse cases were negatively portrayed.

As the table below shows, there was only a slight difference in the emphasis of reporting the drug abuse issue across the papers in the period:

Newspaper	# of Stories	% of Newshole
The News Sentinel	6	21
The Indianapolis Star	5	19
The Tribune-Star	5	16
Gary Post-Tribune	3	25
Louisville Courier-Journal	3	24

Based on these percentages, we decided we could treat the coverage of drug-related stories as a constant across the newspapers, and we reasoned that multiplying the frequency of reading the newspaper by a constant is pointless.

Information Processing of News about Environmental Risk:
An Exploratory Study

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Science Writers Education Group
Magazine Division
August1990

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Information Processing about News of Environmental Risk: An Exploratory Study

Abstract

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This study uses the psychological frame of schema theory to explore how and why people process mediated information about environmental risks. Using a panel design, 30 residents of Boulder County, Colorado, were interviewed over a five-month period to determine how they understood certain sorts of news stories about environmental risks. Panelists held two separate but related schemas: a schema of pollution and a schema of waste. Each of the schemas, in turn, was imbedded in an emotional (affective) view of "the environment as something humanity is losing." Certain visual images of specific events also were widely shared among the panelists. New stories about natural hazards were processed in separate schemas.

Panelists did not process individual news stories as discrete bits of information. Within days of events, information acquired through news accounts was integrated into a larger cognitive stream, blending mass communication with personal experience and fiction with news.

The Research Question

On July 29, 1988, in the midst of the worst national drought in recent memory, a group of 16 United States senators unveiled a comprehensive plan to combat global warming. A similar comprehensive plan, the Green Initiative, will face California voters this fall. In both instances, citizen awareness of those proposals will be mediated; news accounts will attempt to place personal experience within a political, economic and scientific frame.

Yet, whether people absorb and make sense of mediated information about risks in the environment remains the subject of some scholarly debate. One strand of literature developed by the hazards management community suggests conveying hazard and risk informatin that will be accepted and retained is problematic (Drabek 1986; Fischhoff, Slovic and Lichtenstein, 1983; Slovic 1984).

In a related area of inquiry, Graber (1984) has argued that people cannot absorb information about science because they have not been socialized into processing the requisite intellectual schemas to allow knowledge acquisition and retention. And, what people do not know, they cannot understand.

> When people fail to learn or create appropriate schemas for certain types of news, that news cannot be absorbed. Socialization of average Americans apparently leaves a number of gaps in the schema structure. These gaps then make it difficult to focus public attention on some important problems. News about most foreign countries and *news about science* are examples. Even when such news is presented in simple ways, much of the audience fails to make the effort to absorb it because appropriate schemas did not form part of past socialization. (Graber 1984: 206, emphasis added.)

In apparent opposition, some event-specific studies have found that a not insignificant part of the public retains some mediated information about hazardous and risky events (for example, Atwater, Salwen, and Anderson, 1985; Wilkins, 1987; Mazur, 1987). News reports of such events--unlike more "straight" science stories such as accounts of the highest temperature at which superconductivity can occur--may in some way have more symbolic proximity to certain audience members.

This study uses the psychological frame of schema theory to explore how and why it is that people process mediated information about environmental risks. Since the mass media are one of the primary ways in which people learn about such issues, understanding how these messages are selected, retained and placed in some overall cognitive frame is crucial. Buried within this issue is one of the most profound questions in communications scholarship: How do people construct meaning from mass mediated messages.

The Theoretical Overview

DeFleur and Ball-Rokeach (1982) propose a model of media influence which links society, media and a variety of effects to the degree audience members depend on the media for information. This audience "dependency" is determined by the number and importance (centrality) of media services and the degree of conflict and change within a social structure. The media may influence audience members in a variety of ways, including cognitive, attitudinal and behavior change. As the scholars note (DeFleur and Ball-Rokeach 1982, p. 244):

> Thus, dependency on the media for resolution of ambiguity is easy to understand. When people become heavily dependent upon the mass media for the information they need to resolve ambiguity, the defining or structuring effect of mass-mediated information is considerable. The media do not have the power to determine uniformly the exact content of the interpretations of "definitions of the situation" that every person constructs. But by controlling what information is and is not delivered and how that information is presented, the media can play a large role in limiting the range of interpretations that audiences are able to make.

In the late Twentieth Century, media accounts of a variety of hazards and risk, from natural hazards such as earthquakes, to predictable breakdown of risky systems (Perrow 1984), to elusive hazards such as the greenhouse effect (Kates 1985), have become big news. The media also help set the public agenda on environmental issues (McCombs and Shaw 1972; Atwater et al 1985; Rogers and Dearing 1988). People retain the "facts" of such events, and link those facts in various ways with their own lives (Wilkins 1987).

Further, these messages about a variety of risky events follow a predictable pattern. Most media reports are accurate and may, in fact, reflect a tendency to deflate rather than inflate elements such as the death toll, the amount of property damage, etc. (Scanlon et al, 1978; McKay 1984). The mass media also may have a more subtle influence by framing the symbols that surround the event (Krimsky and Plough 1988). Media accounts also rely on predictable information sources, (Dunwoody, Friedman and Rogers 1986; Wilkins 1985). These tendencies transcend national boundaries and media systems (Wrathall 1988; Quarantelli and Wenger, forthcoming).

Media accounts also maintain an event-centered perspective, reporting risky events as they unfold but omitting much mention of the political, economic, social or scientific causes of the disaster (Stephens and Edison 1982; Rubin 1987). This decontextualization of the event (Altheide 1976) will be particularly noteworthy in television coverage (Patterson and Wilkins 1988; Patterson 1989). Television also may tend to report disasters according to various predictable scripts (Nimmo and Combs 1985), which may include the use of inaccurate or stereotypical portraits (Wilkins and Patterson 1987) and an emphasis on victimization (Wilkins 1987).

On a somewhat higher level of abstraction, some studies of media coverage of risk have concluded that the very definition of news itself predisposes journalistic accounts to emphasis individual responsibility for risk while de-emphasizing the underlying social and political framework that gives rise to risky systems (Wilkins and Patterson 1987). The news tends to transform risk, linguistically at least a voluntary condition, into hazard, an event or condition about which the individual has no choice. This transformation omits a crucial element of individual decision making. Mass mediated versions of risk are seldom reported as issues of choice. This institutional bias about what constitutes news has led some scholars to note: "On scientific issues with political overtones, such as nuclear power, flouridation, etc., dialogue seems essential. The public's fantasies, thoughts and questions may not be most effectively answered by the mass media," (Cronholm and Sandall 1981: 94).

Thus, a combination of some mid-range theory describing certain kinds of media effects plus the existing empirical evidence about media coverage of and public response to disaster and risk plus indicates an exploration of possible cognitive changes after exposure to mediated messages about environmental risks could be a fruitful one.

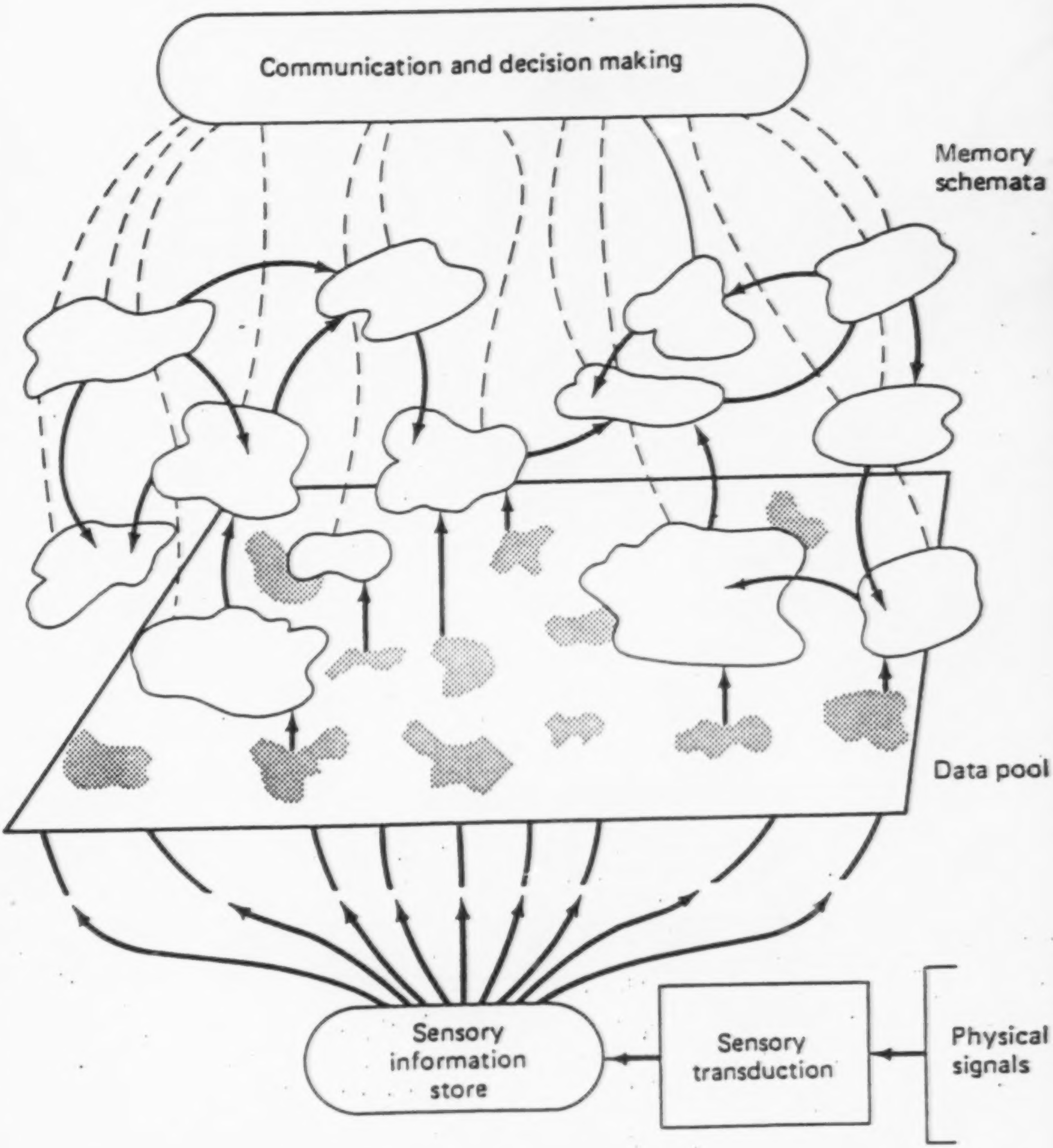
Schema Theory

Schema theory is the outgrowth of work by social psychologists to attempt to understand human information processing, specifically how people understand cause and effect. Schema theory assumes that people are cognitive misers--that most of the time their attention to the environment is narrowly focused, their active memory is small and that they generally have well defined cognitive limits (see illustration 1). How people select and retain information is often determined by their structure of previously stored knowledge (Fiske and Taylor 1984). These categories of previously stored knowledge are generally referred to as schemata, or a hierarchical organization of knowledge in a particular domain (see illustration 2). According to schema theory, general knowledge and environment events are stored in long-term memory as frames or scripts that can be retrieved and used as analogues of current events, and, as such, serve as guides to action. They allow extrapolation from past experiences to current or anticipated reality (Anderson 1980; Gilovich 1981). Schema theory, thus, helps to explain how information is stored, how it is understood (or processed), how it can be recalled, and how some information is discarded.

Cognitive schema encompass different classes of ideas as well as different levels of abstraction. Role schemata may concentrate on social categories such as sex, race or occupation. Person schemata organize knowledge about individuals. People frequently extend specific examples to represent a general case. Some schemas are idiosyncratic while others are much more widely held. People may place one object in more than one schema--for

Illustration 1

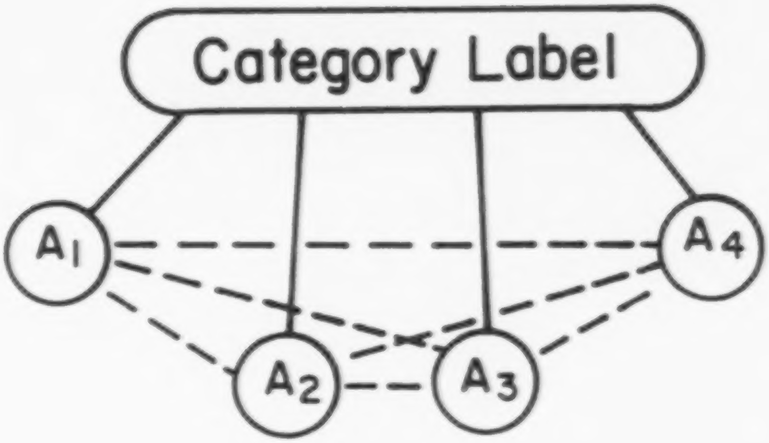
Schema Theory


Communication and decision making
Memory schemata
Data pool
Sensory information store
Sensory transduction
Physical signals

"On the Role of Active Memory Processes in Perception and Cognition" by Donald R. Norman and David G. Bobrow in *The structure of Human Memory* edited by Charles Cofer, San Francisco, W. H. Freeman and Company, 1976, p. 118. Copyright 1976 W. H. Freeman and Company.

Illustration 2

Simple Schema


Category Label
A1
A4
A2
A3

Hypothesized representation of schema cued by categorization.

example, people may have developed a "person" schema about Dan Quayle, but Quayle also may become part of a role schema for "American politicians".

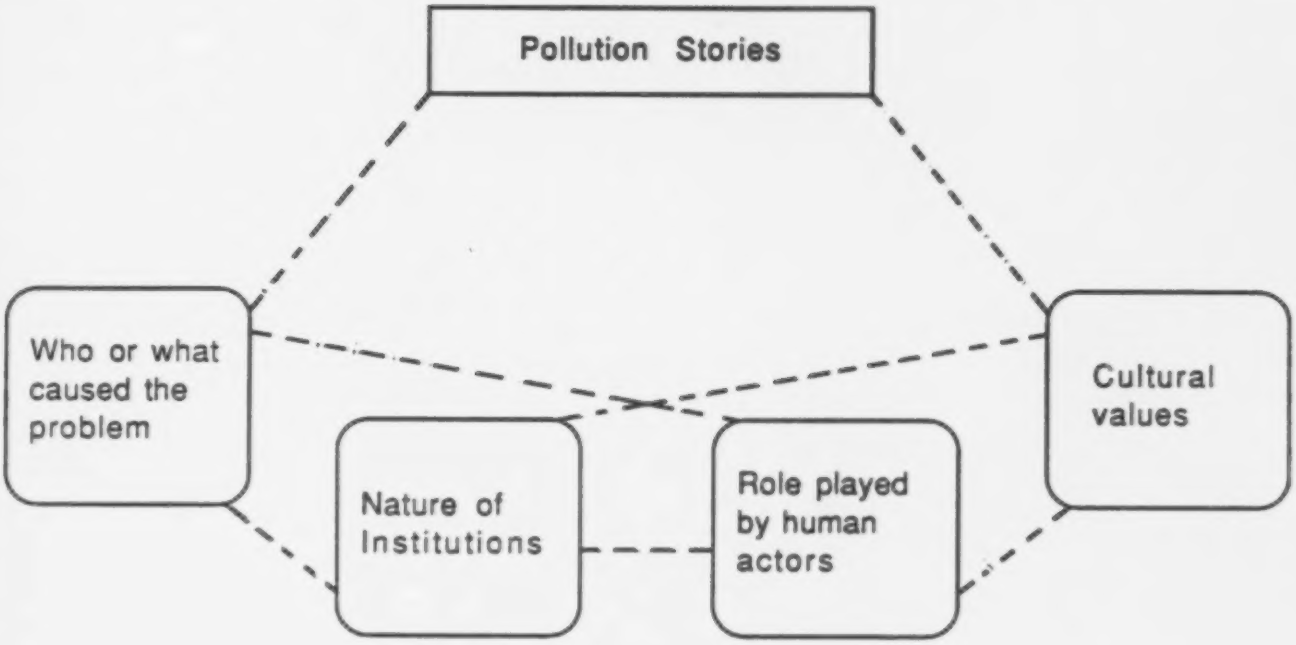
Work by psychologists and political scientists has refined the notion of schematic information processing. There is some empirical evidence to indicate that emotions influence whether information is stored schematically or in a more piecemeal process, (Fiske 1986: 50-51).

> ...schema-based processing is most likely when: (a) an affect-laden category label is available, with supporting information or with nothing additional; (b) the available information strongly cues as affect-laden category; (c) global judgments are required; or (d) the required judgments have been made previously. ...Schematic processing is likely when (e) the judgment is rushed; (f) the respondent's outcomes do not depend on the judgment; or (g) the respondent has a simple view of the judged object....Conversely, piecemeal processing is favored when: (a) the judged object is category inconsistent; (b) the judged object is a collection of information that does not cue a category; (c) concrete, instance-oriented judgments are required; (d) the required judgment is novel; (e) the judgment is made at a leisurely pace; (f) the respondent's outcomes depend on the judgment; or (g) the respondent has a complex view of the judged object.

While schema theory per se has yet to be applied to information processing about environmental risk, the foregoing analysis indicates that the average person might tend to process information about disasters in a piecemeal way because hazards and disasters are concrete and instance oriented, sometimes novel, and individual outcomes may depend on the judgment. This tendency could be exacerbated by the mass media's treatment of hazards and disasters as novel events (see illustration 4).

Other qualities about different sorts of environmental risk may encourage more schematic processing. All risks are not novel, individuals may indeed know enough about them to "cue" a category, threats to life and health are often "affect laden", and, in a political sense, mitigation strategies do require global judgments.

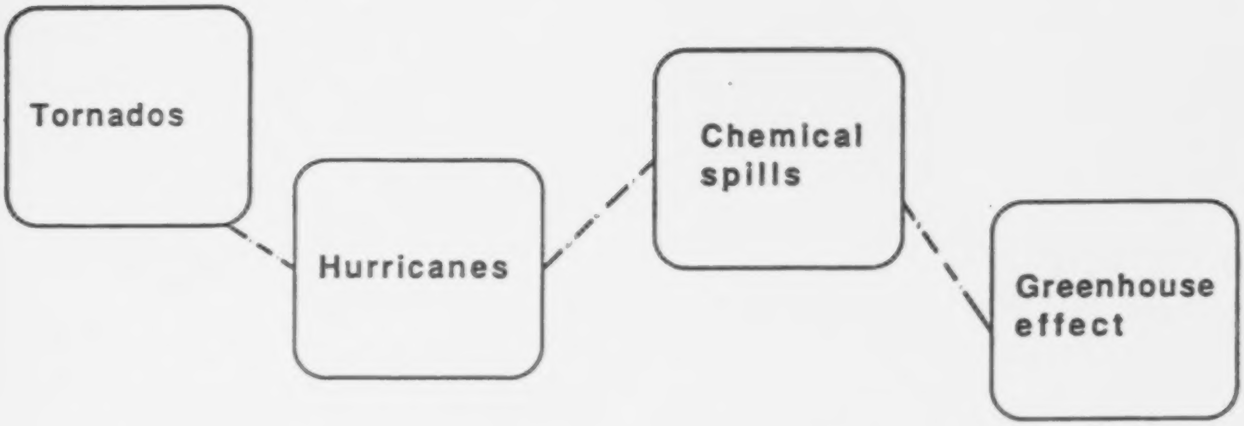
Illustration 3
Graber's Pollution Schema


Pollution Stories
Who or what caused the problem
Cultural values
Nature of Institutions
Role played by human actors

Hypothesized representation of processing of news accounts about pollution as analyzed by Graber.

Illustration 4

Piecemeal Processing of Hazards


Tornados
Hurricanes
Chemical spills
Greenhouse effect

Graber applied schema theory to information processing of political news with considerable success (see illustration 3). She found that people processed news of politics according schemas grouped into: cause-effect dimensions, person dimensions, institutional dimensions, human interest and empathy dimensions, and cultural dimensions. Pollution was one such political issues, and people processed information according to cause-effect dimensions (heavy road and air traffic, industrialization, high-economic costs of pollution controls and regulations), person dimensions (people drive too much), institutional dimensions (dumping industrial waste, business greed, lax government regulation and enforcement) and cultural dimensions (Americans are unconcerned with the welfare of future generations) (Graber 1984, p. 188-189). Not all specific political issues included schemas in all six dimensions, and Graber's reports of her work do not include notions of piecemeal information processing.

However, Graber did note that the schemas her panel members used to "process" news about politics were both simplistic and relatively limited in both number and scope. Her general conclusion was that most of the people she studied did not, in any deep way, incorporate the complexity of many political issues into their cognitive structures.

Preliminary work is highly suggestive but leaves a number of unanswered questions. Foremost among them is the delineation of any possible relationship between schematic processing of mediated information about risks in the environment and the potential for more piecemeal processing. It is possible, for example, that people may process information about environmental risks with which they are quite familiar schematically while other, more novel hazards, for example nuclear power plant accidents, would be processed piecemeal. Scholars also need to examine the potential differing impact, if any, of messages conveyed through various mediums, for example, the print media as compared to the broadcast media. In addition, it is possible people may begin to develop new schemas which integrate both old and new information. Drought, for example, may be viewed as part of a strictly weather-related hazards schema but, as the individual acquires more information about the greenhouse effect, may either become a part of new schema of what scholars would call "elusive hazards" or would lead to the modification of an existing schema--perhaps a generalized concept of pollution.

Study Method

Psychologists generally study the acquisition, development and use of schemas either through a panel or experimental design. Because of both the breadth and the depth of questions surrounding mediated information processing about environmental risks, this exploratory study was conducted using a panel design. Intensive, in-person interviewing over a five-month period allowed each of the study participants to frame answers in-depth within a particular context that included both individual life histories and the larger environment comprised of a variety of events and influences.

Like all panel designs, this study acknowledges certain methodological constraints. First, a respondent pool of 30 people--no matter how well selected or intensively interviewed--does not represent a readily generalizable sample. While the author believes that basic tendencies reflected in the research are indeed generalizable, this exploratory study provides only that indication.

Second, all panel designs include the possibility of sample contamination and sensitivity. For this work, however, the use of a control group would have been difficult; the mere act of talking to the control group could have resulted in some heightened sensitivity. Instead, panel members were asked to live their lives as if they were not part of the study, and individual responses during the interviews indicate the panelists were able to do this. For example, several panel members said the Christmas and New Year's holidays had disturbed their normal media use habits and that they didn't remember much about the news during that period. While such recollections are admittedly anecdotal, they do indicate that while increased panel member sensitivity to the issue remained a continuing concern, it did not appear to skew panelists' attention to or processing of media reports. Graber and Lane (1962) also found that intensive interviewing over time did appear to influence the development of individual information processing schemas. Nonetheless, follow-up studies, particularly of an experimental nature, would be necessary before scholars could rule out sensitization.

With these preliminary cautions in mind, the study was conducted as follows. A professional polling firm was asked to select 30 panelists from among the 180,000 residents of Boulder County, Colorado. About 80,000 county residents live in the city of Boulder, with the remaining residents living in the cities of Broomfield (a north-Denver suburb), Longmont (a city of 50,000 residents who are more rural and blue collar than their Boulder neighbors), Louisville and Lafayette (two bedroom communities), several small mountain towns, and unincorporated Boulder County. Using a random digit dialing method, the polling firm drew the 30-member panel. The refusal rate on the requests to participate in the study was within the accepted norms.

The panelists reflected the gender, age, income and occupational profile for Boulder County. The city of Broomfield--with three panel members--was slightly over represented on the panel in terms of percentage of the county population; the city of Longmont--with six panel members--was slightly under-represented. Other residential areas of the county were represented on the panel at roughly the percentage of the population of the county as a whole. There were no ethnic minority panelists, something which is consistent with the county's ethnic composition . One panel member had not completed high school while four others had had no more than a high school education. However, because the study was conducted in a well-educated, affluent area, all the other panel members had had at least some college education; five of them possessed (and another was working toward) advanced degrees.

Panelists were interviewed once every six to seven weeks during a five-month period; they were paid $20 for each completed interview. The interviews followed a general outline in insure that specific topics were covered but also allowed for probing in areas where the panelists had more to say. One panel member moved during the course of the study for a drop out rate of about four percent. All interviews were tape recorded and transcribed.

The interviews were coded for a number of discrete variables, for example which publications or newscasts were regularly read or watched, which issues were mentioned first, second and third in the interview, and which news events required interviewer prompting. Schemas "surfaced" during the interviews when people used the same word, phrase or concept to connect different events. For example, many respondants described Denver's brown cloud and the contamination at the Rocky Mountain arsenal as a form of "pollution" and then linked pollution to other issues as well. Similarly, schemas were noted as "absent" when people failed to make such linkages. For example, only two of the 30 respondents even mentioned Fort Saint Vrain, Denver's nuclear power plant, when discussing Rocky Flats. It was apparent from the repeated failure to connect two "nuclear" problems that the organizing schema for the panelists was "pollution" rather than "nuclear".

How Green Was the Sample

In addition to the traditional cautions, a panel study in Boulder, Colorado, presented one unique methodological problem: the perception that Boulder is unlike any other place in the country. Boulder considers itself an environmentally aware community and has acted in many ways--additional taxes to acquire and preserve open space, support of a recycling program, a health-conscious and politically outspoken population--to sustain this assertion. The majority of the panel members, while they said they did not consider themselves environmentalists, participated in a variety of activities, membership in Trout Unlimited, recycling, outdoor sports and recreation, that could be construed as support for the environmental movement. A minority of panel members had taken political action on a specific environmental cause. A different minority of the panel members did not participate in environmentally related activities. It is probably a reasonable view that the panel was generally somewhat more aware of environmental issues than the average U.S. resident. But, as the following indicates, that awareness of news accounts was understood and retained in a way that is most probably not unique to residents of Boulder County.

The Media Environment

Panelists, because of their proximity to Denver, had access to a variety of media. The Denver market boasts four television stations, two competing metropolitan newspapers, the *Boulder Daily Camera* and the *Longmont Times-Call*, both newspapers focused on those two communities. In addition, there are a number of radio stations in the larger metropolitan area, including the area's top-rated station which, during the time of the study, ran news specials focusing on environmental issues.

The top environmental stories during the study period were: developments at the Rocky Flats nuclear weapons plant eight miles south of Boulder, Denver's yearly battle with its brown cloud, a variety of reports about the clean-up of the Rocky Mountain arsenal, the San Francisco earthquake, the trail of the captain of the Exxon Valdez, the low snow pack, particularly in the southern part of the state, the continuing debates over the construction of the proposed Denver airport, and the Environmental Protection Agency's decision to reject the proposed Two Forks reservoir development. There were also some strictly local issues that received news coverage during the study period, including a Longmont election campaign in which recycling was a minor issue. Boulder residents also received news coverage about open space and community growth.

However, this broad array of environmental news must be placed in context. During the study period, the top news story remained the the changes in the Soviet Union and eastern Europe. Most of the panel members were very much aware of these historic events; their consumption of environmental news needs to be evaluated accordingly.

The Role of Affect and Proximity:
The Desire to Conserve What You Have

Although information processing has been examined primarily in "strictly intellectual" terms, psychologists have documented that information processing is not a strictly intellectual activity. The panelists reaffirmed this view. The panelists conceived of "the environment", regardless of the specific news story in which it was discussed, as something that they either could lose or where in the process of losing. This view of the environment as something which "could be lost" was not merely an intellectual construct. All the panelists were concerned about it, and they brought a quality of emotion to that concern that varied from casual interest to a real passion for preservation. The environment, to them, was an emotional subject; it was something that aroused deep feelings in many, and all the panelists voiced regret the environment was somehow degenerating.

Other studies on risk perception have documented this quality of "expected loss" about risk (Schultze and McClelland 1986). In the laboratory setting, people have been found to be less willing to take risks when they view the consequences as those of "loss" rather than as neutral or potential gain. What the Boulder panelists add to these insights is the affective nature of that aversion to perceived loss. Since affect has been linked with a tendency to schematic processing, the emotion that environmental news arouses seemed to indicate that, on many issues, environmental stories would be processed in a more schematic than piecemeal fashion.

The panelists also provided some insights into why they viewed the environment as something they could lose. As might be expected, many of those insights focused on the daily activities panel members--driving into Denver and seeing the brown cloud, childhood memories of mountain landscapes that have been developed, and for two of the younger panel members the crowded Colorado ski slopes. The emotional attachment to the environment was not something the panelists said they had "picked up" from the news. Rather, it was part of daily life. The environmental risks that most troubled the panel members--with the exception of Rocky Flats--were those that they could see and describe. To panel members, this loss of environmental quality was tangible--it did not require an act of imagination to become real.

The second underlying influence on information processing the panel members articulated was the role of physical and psychological proximity. Physical proximity dominated thinking about environmental news. When panelists were asked the open ended question "what news stories about environmental risk come to mind," 28 of 30 responded with either "Rocky Flats" or "the brown cloud". Both issues have received extensive news coverage in the area for many years; both also were something many panelists could see from their homes or certainly from the highway. As the interviews progressed, the panelists began to talk about news coverage of environmental stories that were far away from home, but only after dealing with the local questions. Not one single panelist began his or her discussion of news about environmental risks with an issue such as the greenhouse effect only to spiral inward. Instead, people worked from close to home outward.

While physical proximity dominated recollection of news stories about environmental events, psychological proximity also played an important role. The two panel members who did not mention either the brown cloud or Rocky Flats first in their list of recollections of news stories about the environment, both of them mothers of at least one child under two, began with something that was even closer to home: disposable diapers. A third panel member who also was a young mother ranked disposable diapers second on her list of risks to the environment she recalled newspaper or television stories about. While the disposable diaper issue had received some media coverage in the Denver area, it was not one of the dominant environmental stories of the study period. Clearly, this was a place where real life was interacting with the news in some important ways.

Other panel members also reflected this tendency. If daily living included commuting, as it did for some, then the brown cloud was a psychological reality. Many panel members who had lived in the area for ten or more years linked childhood or decades-old experiences with what they viewed as contemporary problems. This "old information" was readily summoned in discussions about issues as diverse as whether the Two Forks dam should be constructed, Boulder County's growth rate, the brown cloud, ozone depletion and the greenhouse effect. Further, people moved easily from this obviously long-stored information to specific environmental issues, and sometimes specific news accounts, and then back again.

This apparent willingness and ability to move easily back and forth in time has important implications for information processing. On the one hand, it indicates that certain schemas do persist and that they help people frame new events. Further, those frames are information rich, although the stored information is in many senses idiosyncratic. However, changing the existing schemas, because they are so deeply imbedded, also may be problematic. This was particularly evident when panelists were probed about the role of the social and political system in shaping environmental choice, something that is often missing from news accounts and something with which only a minority of panel members had had personal experience. Their schemas were relatively "bare" in these social and political areas although the panel members unanimously and emotionally agreed that "doing something" was important.

Two Shared Schemas: Pollution and Waste

Most of the environmental stories and issues the panelists discussed were processed under two separable but clearly related schemas. The broadest of those two was a "pollution" schema which encompassed information about issues such as the "brown cloud," water quality, the greenhouse effect, ozone depletion, the contamination of the Rocky Mountain arsenal and local growth in a general sense. The organizing force of the schema for most people appeared to be the notion that people, business or the government were producing a variety of "things" that fouled the environment.

In keeping with Graber's work, the pollution schema focused on dimensions of individual responsibility and a simple construction of cause and effect. For example, when discussing the brown cloud, almost all the panel members said that the individual in some way contributed to the problem. The most common contribution cited by the panel members was "I drive too much", but many panel members also noted that wood burning and some sorts of industry contributed to the problem.

People also were able to articulate some of the basic science of the brown cloud. For example, when asked "what do you mean by the brown cloud", all the panelists discussed particulate matter in the air, and the majority of them were able recall that in Denver, the single biggest component of the problem is carbon dioxide emissions automobile traffic. While only one panelist discussed the role of the interaction of high altitude, sunlight and carbon dioxide--a much more complex view of the science of Denver's air pollution problem--all the panelists understood the simple science.

What was much less clear was the "institutional" role in the development and correction of the problem. While the majority of the panelists linked the brown cloud specifically with car emissions, none of them discussed mandatory emission controls in the manufacturing process. Instead, people discussed the more in-person dimension of the yearly auto emission inspection required in the metro-area, the use of oxy-fuels, and Denver's annual no-drive campaign. In this sense, the panelists' institutional dimension focused on local and state governments' response to the problem. Business was generally omitted from this discussion as was any potential regulatory role for the federal government.

The same sort of pattern was reflected in information processing about local water quality, ozone depletion and the greenhouse effect. People were generally clear about the role of the individual in the creation of the problem, they understood at least some of the simple science of the issue (although it must be pointed out that a small minority understood that science quite incorrectly) and they could link individual activity with some of the basic science of the problem. What was absent from these discussions were the intervening layers of social and political responsibility with the exception of quite broad generalizations of "they should do something" with "they" referring to federal and infrequently global governments.

This somewhat generalized pollution schema also allowed panel members to accept new information. During the second month of the study, the Boulder newspaper published a front-page account of a local air quality study which had found that Boulder produces its own brown cloud. Only one of the panelists who recalled reading that particular story rejected the "scientific findings", saying that he believed the "stuff still comes from Denver." The others who recalled that story, a total of nine panelists, commented, "Yes, I believe it; I guess the winds scour out Boulder a bit more," (an accurate recollection of the study and the news story) and "the traffic around here is pretty bad--we really ought to do something about cars." In short, the existence of a generalized pollution schema seemed to allow people to accept and integrate some sorts of new information, even when that information contradicted existing notions.

Waste provided a second organizing schema for news accounts. However, the waste problem itself is not a strictly scientific issue, and panelists' information processing reflected that reality. The in-person dimension was well developed; people knew they used and threw away too much "stuff". Individual recycling was the most frequently cited in-person activity the panelists did take or thought others should take to reduce waste, and panel members were quite critical of their own failures to recycle or reduce consumption. (It should be noted, however, that this self-criticism appeared to be primarily rhetorical.) Unlike the pollution schema, the waste schema reflected a better developed institutional dimension. Panelists asserted that their local governments had a responsibility to find and develop new landfills and to encourage people to recycle.

This institutional dimension was particularly evident when the panelists discussed the proposed Two Forks dam controversy. To the non-westerner, it might initially seem that Two Forks could be viewed as a "pollution of the landscape" question, and to some extent that was true. For example, two of the panel members had fished the area and a third had been on a family vacation in the area. They viewed Two Forks, in part, as the unnecessary development of wilderness. But most panelists seemed to process information about Two Forks as a question of waste, i.e., "if we would just conserve water, then we wouldn't need to build it". Only a few panelists linked the Two Forks question with metro-area growth; the majority viewed it as essentially a conservation issue. And, the majority of panel members also understood that local, state and federal government had a big role in deciding whether the project would be built. Further, this understanding seemed to span specific political stance on the question. Both supporters and opponents of Two Forks talked about the dam in terms of unnecessary waste of water resources or of conserving taxpayer resources should the facility be needed in 20 to 30 years.

This waste schema also tended to dominate information processing about the clean-up of the Rocky Mountain arsenal, a news issue that a minority of panel members discussed. In this sense, the notion of cleaning up "the mess" meshes well with the underlying psychological and emotional structure of viewing the environment as something that "is being lost". Panelists repeatedly focused on cleaning up a variety of problems rather than on more pro-active, preventive measures. Not coincidentally, such pro-active and preventive news stories are relatively rare.

Six of the panel members also recalled television accounts of a state study which found that cancer rates around the arsenal site were higher than average. One panel member who worked in the Commerce City area noted, "We don't drink the water" and most of the panel members said "it stinks". Panel members readily linked these personal experiences to news accounts.

Nuclear is the Same...Only Different

As alluded to earlier, the panelists processed information about the Rocky Flats nuclear weapons plants as part of a pollution schema. Affect seemed to have a much greater impact on the processing of information about Rocky Flats that it did for any other issue.

The general emotional response to the events at Rocky Flats (with the exception of one panel member) was a combination of "anomie" and "resignation". People repeatedly said that they seldom paid close attention to news reports about Rocky Flats because "it's just the same thing all the time--nothing ever changes." Yet, when pressed for details, almost all panel members knew that the primary pollutant at Rocky Flats was plutonium, that other wastes were also generated, that plant ownership had changed one week before the project began, that the FBI was investigating the facility, and that Rocky Flats builds nuclear bomb triggers. Most had seen the facility, which is visible from the main highway between Denver and Boulder, from a distance.

Several panel members, including all of those who lived in Broomfield--the city geographically closest to Rocky Flats--had acquired even more information, for example the precise steps the city of Broomfield had taken to block plant affluent from entering the city water supply. Another panel member--an unincorporated-Boulder-Country resident--had spent a lot of time reading magazines to become informed on the technical engineering details of plutonium processing and recycling. He had also talked to his neighbor, a nuclear physicist, about it. The one panel member who proved an exception to this predominantly mediated view was a 22-year-old Longmont woman who seldom read the newspaper or watched television because she was working 50 hours a week as the sole support of her four-year-old daughter. However, her stepfather worked at Rocky Flats; she acquired her information about the plant from him.

But while the panelists evidenced a wide range of knowledge about the plant, what dominated their thinking about Rocky Flats was emotion. With the exception of the woman whose stepfather worked at the plant, all viewed Rocky Flats as a "dangerous" place. About two-thirds of the panelists believed the plant should be closed. Their discussion of possible closure indicated that they understood that the potential tradeoff was between 6,000 jobs and pollution. The panelists chose "cleaning up" Rocky Flats. Further, all the panelists understood that Rocky Flats had a political function--and in fact, it was this political aspect of the problem that seemed to generate the greatest level of resignation. Almost all of the panelists questioned whether the country "needs to build more bombs"--with several noting that plutonium itself can be recycled. But, they indicated that they felt powerless to change national policy. The panelists also unanimously said that they believed local or state government could not be force the plant to close despite public sentiment.

In short, most of the panelists appeared to have become numbed to the localized health and environmental risks they believed the plant posses. Further, these risks were obviously dread, centering on cancer and plutonium contamiation of the air, soil and underground water supply. The panelists didn't want to live near Rocky Flats, although none said that they were so concerned about the plant that they would move. Rather, they lived near Rocky Flats because they felt they had no personal or political alternative. Their unwillingness to pay close attention to news stories about the plant reflected this view of perceived political impotence and some personal denial.

It is also critical to note that Rocky Flats was almost never connected to anything else nuclear. When people talked about Rocky Flats, they did not mention Chernobyl, Fort St. Vrain or Three Mile Island. Rocky Flats, to these people, represented pollution. But it was a distinct sort of pollution, for it encompassed not only pollution of the environment and of individual health, but pollution of the political process as well.

Natural Hazards: Processed Separately

While the panelists discussed a variety of environmental risks when asked open-ended questions about news accounts, they had to be prompted to discuss hazards such as earthquakes, floods, hurricanes, etc. After the prompt, one panelist responded, "Oh, I think of environmental risks as something people do to the environment--not something the environment does to you." After being prompted, panelists recalled news accounts of several natural hazards. The two most dominant events panelists recalled were the San Francisco earthquake and Hurricane Hugo.

Physical and psychological proximity also appeared to play an important role in how information about those events was processed and retained. Six of the panel members said they "found out" about the earthquake when they getting ready to watch the World Series. Instead, they saw the earthquake. Seventeen panel members said they "turned on the television" to see news coverage of the quake either after receiving a telephone call from a friend or family member or when they were watching the news on "another channel". The single panel member who did not own a television set did not watch any of the quake coverage that evening but, after reading newspaper accounts the next morning, "watched about 30 minutes" at his job.

About half--17--of the panelists, had either visited San Francisco or had family or friends living in the Bay area. Two of the panelists had relatives in southern California. All of those people who had some personal connection to the area said that part of the reason that they watched the television coverage was to see if their family and friends might somehow be involved. These panelists definitely used television to perform an environmental surveillance function--and many of them tried to follow up the quake coverage with phone calls. Many said that they watched television "until I went to bed"--a span in some cases of about five hours. All the panelists had some rudimentary schema for "earthquake" although only one wandered into the more scientific concepts of plate tectonics.

The earthquake, as well as Hurricane Hugo, appeared to be processed piecemeal. Panelists had to be "prompted" to discuss both events; they did not "arise" in the course of the conversation. Further, discussion of either the San Francisco earthquake or Hurrican Hugo did not "lead" to discussion of other natural hazards. Although nine of the panelists had lived in the Denver area for more than 30 years, only one of those nine said that the coverage of the San Francisco earthquake reminded him of a minor set of earthquakes in the Denver area in the 1960s. The youngest panel member, a 21-year-old CU philosophy major whose home was the Bay area, said watching the October quake coverage reminded him of other quakes--events he regarded as "fun...because I got to miss school."

Those panelists who had family or friends living in southern California could not recall any news coverage of earthquake threats or actual quakes in that area--even when probed. (The Denver-area newspapers and television stations carried accounts of both during the study period.) Most of the panelists said that they would be willing to "visit" San Francisco after the quake, although on man who had traveled there on vacations said he and his wife now only stayed on the "ground floor". Several panelists volunteered that people "are crazy to live in San Francisco" and one woman added, "but I guess people there might think we are crazy to live near Rocky Flats." Memory of Hugo coverage was vague; the one panel member who had lived in Florida before coming to Colorado said he watched the coverage "only long enough to make sure my uncle wasn't hurt."

These personal sorts of experiences may explain why the quake coverage, more than many other environmental risk stories, reflected an empathy dimension in information processing that was absent in the pollution and waste schemas. Panelists were genuinely concerned about the health and well being of quake victims; three specifically remembered news accounts of the boy trapped in a car on the Nimitz freeway who was freed by sawing through his mother's dead body. One panelist, a special education teacher, said he had discussed that particular story in class with his students "because they didn't really understand that his mother was dead anyway and that they had to do it to save his life." More than half of the panelists recalled the story about the rescue of another man trapped on the freeway; most of those people also recalled that he died about a month later.

Visual Memories

Just as there were shared schema about environmental risks, there were also shared visual memories which all but one panelists said came "from television." Five of the panelists, however, said that they recalled similar pictures in magazine and newspaper coverage.

Considering the use of television as a surveillance mechanism for news of the San Francisco earthquake, it is not surprising that the most vivid visual memory the panelists shared was of the collapsed Nimitz freeway. Several panel members commented on the still photographs of the freeway they had seen, but most remembered television. Almost all, when describing those pictures, smacked their hands together to indicate their perceptions of how the upper level of the freeway had collapsed onto the lower section. This shared visual image also prompted a deeper recall of some of the earthquake coverage itself, particularly the rescue operations on the freeway.

The second shared visual memory was of an event the occured seven months before the study began: the oil spill from the Exxon Valdez. Even though the event itself was far removed in time from the interviews and generally did not rank among the top environment risk stories the panelists recalled, the images of news coverage of that event were widely shared. Specifically, when people said they remember were dead, oily animals. Sea birds and otters were the two most frequently cited specific recollections. For most of the panel members, this visual image summarized their view of the event. Even when probed, they did not analyze the oil spill as the result of conscious political and economic choices on how to fuel the national economy. Instead, they viewed the spill in a much more event-specific context, and the dead animals served as a more concrete view of the pollution problem and the consequences of environmental accidents.

Information As Stories

Most discussion of information processing--as well as the abstract concept of information itself--have assumed that information is a series of "bits" that people assemble into a larger framework. The advent of the computer has augmented this concept; most scholars assume that information comes in separate, discrete "pieces", which individuals identify and process in particular ways.

Yet the panelists viewed information, even information acquired through attention to and retention of individual news stories, differently. To the panelists, information was a story to tell. For example, when asked the opening question of "what news stories do you recall..." panelists never began with a specific news account. Instead, they recalled an issue, Rocky Flats, and then proceeded to tell the story of Rocky Flats as they recalled it. What emerged was a sort of chronological narrative that wove together mediated accounts with more interpersonal, and sometimes professional, experiences. These recollections moved rather freely in time. In a factual sense, they were generally accurate, although the recall of specific detail was never "good". And, such recollections wove together news and "entertainment" accounts. One panelist recalled in great detail what she knew about the greenhouse effect--the number of feet the seas would rise, the projected ambient temperature changes, etc.--but could not remember where she had "acquired" the information. About 10 minutes later, when the interview had moved to an entirely different subject, she sat up, snapped her fingers, and said, "I know where I got that. I was watching Murphy Brown." (Her memory on this point was accurate; the sitcom had devoted part of an episode to Murphy covering the greenhouse.) Other panelists reaffirmed this insight. Within days of events, specific information was integrated into this larger cognitive stream, blending mass communication with personal experience and fiction with news.

For the panelists, mediated information was much more liquid than the "bits and pieces image" that currently dominates scholarly discussion. That liquid information blended and channeled many types of information, regardless of source. This concept of information as "liquid"--particles that move easily and flowingly and change their relative position without any perceptible break in their continuity--has important implications for risk communication and perception research which currently tends to compartmentalize various sorts of communication without much regard for how those messages are received and then processed.

Conclusions

The construction of meaning about issues of environmental risk is a large questions, and not one that can be answered by a single study. Nonetheless, some important tentative conclusions arise from this work that are of fundamental import.

- Environmental risk is an emotional question that centers of loss rather than potential gain. Such an underlying construct appears encourage schematic information processing.

- People do share schemas about environmental risk. Those schemas, while generally poorly developed, emphasize simplistic notions of cause and effect and developed notions of in-person responsibilities. The schemas, however, are almost "bare" in the areas of the social, political and economic links to specific events. Other scholarly studies have noted that mediated accounts of such events are relatively "bare" in these same areas. This study does not assert a cause-effect relationship between these two findings. It is appropriate to suggest, however, that mediated images may help shape schemas--or in this case a lack of information to schematize--in this crucial way.

- Natural and technological hazards appear to be processed in a much more "piecemeal" fashion despite the scientific links between certain hazardous events and larger environmental questions.

- Audience members use the media in specific ways to acquire information about environmental risks. The two most common uses appear to be surveillance and reinforcement. Mediated information is integrated into a larger, information stream which swirls together past as present experience, fiction and news, and inter-, intra and mediated forms of communication. Schemas of environmental risk integrate all these notions in a much more complex way than most of the dominant literature in the field currently suggests.

Emperical research could build on these insights. For example, it should be possible to test in a laboratory setting whether different ways of "telling a story" about risk are capable of influencing information retention. It is possible to suggest that television is such a memorable medium because it presents a viewer--in the form of a picture--with a pre-packaged schema, one that may be more easily incorporated into existing schemas than words on a page. Similarly, these results at least suggest that the places where media coverage is "bare" of information, that is, in areas of social and political context, also appear to be relatively "bare" in individual ways of constructing meaning. Again, this notion could be tested in a laboratory setting to determine how different sorts of information might influence schema development.

These findings are tentative.

Yet, tucked within them is a fundamental critique of media effects research which ignores the psychological component of information processing. If scholarship in the field is to break new ground as opposed to re-inventing existing wheels, then the risk communication process itself needs a thorough reconceptualization. One element of that new definition must place an emphasis on the construction of meaning, a process that is as psychological as it is cultural. This study has attempted to take a first step in that direction.

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RISK-TAKING PREDISPOSITIONS:
CONCERN AND INFORMATION SEEKING
ABOUT ENVIRONMENTAL AND HEALTH RISK SITUATIONS

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ABSTRACT

RISK-TAKING PREDISPOSITIONS: CONCERN AND INFORMATION SEEKING ABOUT ENVIRONMENTAL AND HEALTH RISK SITUATIONS

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This research explores the effects of adventurous, impulsive, and rebellious risk taking on concern and information seeking about environmental and health risks.

Hypotheses are offered for additive effects for these three risk-taking predispositions on both concern and information seeking. Data are gathered from 257 adults attending a county fair. Findings indicate that the relationship between risk taking and concern or information seeking about environmental and health risks is not an additive one. As a rule, concern and information seeking are highest for those high in rebellious risk taking and low in impulsive risk taking; and for those low in rebellious risk taking, impulsive risk taking is not a factor.

These effects are strongest with environmental risk concerns and environmental information seeking. The rebelliousness-by-impulsiveness interaction is replicated for the following environmental risks: the greenhouse effect, pesticide residues on food, DDT, food irradiation, contamination of beaches, ozone layer destruction, industrial water pollution, and living near an underground gas storage tank. There are no interactive effects on what are labeled avoidable risk concerns, sex/drug related risk concerns or gun-related risk concerns.

The same interactions were found for use of the media for environmental information. Those high in rebelliousness and low in impulsiveness are most likely to indicate high use of the media, and those high in both types of risk taking are the least likely to use the media for information seeking about risks. For use of television this effect was found for both health (AIDS, syphilis, and hepatitis) and environmental concerns.

Finally, those high in rebelliousness and low in impulsiveness were found to be most likely to read national and local newspapers; listen to rock, soul or jazz radio stations; be male, relatively well-educated, single, or if married have children under 18 at home; smoke; and drive faster than those high in both risk-taking factors.

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RISK TAKING AND COMMUNICATION

This research explores the relationship between having a particular risk-taking predisposition and its effects on concern and information seeking about health and environmental risks. Risk takers present a special problem for public relations communication programs. For example, the American Lung Association continues to try to persuade the 30 percent of people who still smoke, in spite of the known and accepted risks of smoking, to quit. The near epidemic status of AIDS and hepatitis gives professional communicators an urgent reason for trying to persuade young people, who are also more likely to be risk takers, to protect themselves from sexually transmitted diseases. Lasorsa and Shoemaker (1988) propose that a risky attitude--a willingness or even a compulsion to take chances--is relatively stable across time and situations and predicts whether or not individuals engage in risky behaviors. They found "risky" attitudes accounted for nearly 13 percent of the variance in risk for AIDS.

Sometimes those who are risk aversive themselves find it hard to believe that others are deliberate risk takers, but in fact, 35 percent of all persons report they occasionally have more than five drinks in one day, more than 10 percent of sexually active unmarried women say they use no birth control at all, and the 30 percent of Americans continue to smoke. Those who drive well over the speed limit, those who drive after drinking and those who drive without seat belts are among all our acquaintances, as are those who take risks with their health by sunbathing or by foregoing medical checkups, pap smears and other strongly recommended, well-publicized and sensible health-care behaviors.

To communicate with others about risks, it is important to examine our assumptions about the effects of messages on receivers and the effects of the receiver on the message. If we start with a passive model (i.e., the environment shapes the individual), unidirectional causation is also assumed, but if we assume an active model, (i.e., the person and the environment interact and people can affect the environment), bidirectional causation is assumed (Wachtel, 1973). This starting assumption, focuses research questions and choice of variables in studies of campaign effects. With the active model, we assume that individuals dynamically affect the environment--by either modifying the impact of the environment, modifying the environment itself or choosing another environment. From the professional communicator's viewpoint, risk takers can modify the meaning of the message or choose to ignore the message entirely, thus we believe it important to postulate the effects of individual differences in risk-taking traits or predispositions on processing of messages about risk.

RISK TAKING AS A TRAIT

Personality Traits

More than 50 years ago Allport (1937) published the seminal text in personality, Personality: A Psychological Interpretation. Some 30 years later Mischel (1968) rigorously critiqued traditional trait approaches to personality. Although a person-situation debate, (characterized as fruitless by many, Kihlstrom, 1987), still rages in some circles, in 1987 the Journal of Personality and Social Psychology published a special issue declaring,

> Despite the intensity of the person-situation debate and concerns about social-cognitive imperialism it is clear from the contents of this Special Issue that the task of integrating personality and social psychology is now proceeding on a much broader base. Social psychologists are increasingly examining the role of individual differences in . . . (p. 991).

Personality trait researchers currently share a consensus that the person-situation issue should be framed as the interactions between traits and manipulations (Buss, 1989, Endler & Magnusson, 1976). Some are so bold as to argue, " . . . evidence suggests that traits may carry as much variance as experimental manipulations" (Buss, 1989, p. 1378). Buss reasons that traits are often ignored in experimental psychology because the method itself minimizes the influence of traits allowing them to vary randomly and to contribute to the error variance. In the non-laboratory setting, however, it is more sensible to explore the interactions of traits and communication variables.[1] Thus, from an applied perspective, where there is no interaction, only main or additive effects, it may not be particularly productive to focus on traits. When traits and messages interact, however, the view shifts. If, for example, the campaign effect is greater for those high in a trait than low, not measuring the trait would cause you to assume weaker effects for the communication for those high in the trait than actually occur, and stronger effects for those low in the trait than actually occur. This can be particularly important if you are designing a campaign where you want to maximize your resources by targeting those most likely to react to the messages as you intend. The social psychology literature is replete with examples of such effects. Scheier, Carver, and Gibbons (1981) found that those high in private self consciousness were more likely to decrease volunteering when they expected punishment to occur, although there was no effect for those low in private self consciousness. Some messages affect only those low in a trait; failure depresses those low in self-esteem, but has little impact on those high in self esteem (Brockner, 1979).

In the next section we discuss variables that may affect how those high in different types of risk taking process information.

Understanding Risk Takers

Among those who have explored the notion of risk taking as a personality trait versus a situational trait are Cohen (1960), Kogan and Wallach (1964) and Musolino and Hershenson (1977). Research on risk taking proposes several different origins for this behavior. Keinan, Meir, and Gome-Nemirovsky (1984), based upon an extensive literature review, argue that risk takers: 1) need stimulation and seek change, novelty and adventure; 2) are characterized by a high level of activity, energy and dynamism; 3) have difficulty controlling impulses; 4) need to show that they are independent in both thinking and actions and can solve their own problems; 5) do not like rules or norms that restrict personal freedoms; and 6) do not like long-term planning, preferring to respond to the situation rather than to earlier commitments.

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[1] Here, we refer to manipulations as messages or communication

Researchers have studied risk-taking predispositions from at least four different sets of assumptions: as a preference for arousing stimuli (Zuckerman, 1988), as a personality drive called impulsivity (Eysenck, 1958, Eysenck & Eysenck, 1969), as novelty seeking (Pearson, 1970) and as a learned association of risky behavior with rewards--an uncertainty orientation (Sorrentino & Short, 1986).

Sensation Seeking and Biochemistry

Zuckerman (1988) argues that preferences for sensation stem from biological mechanisms and that people differ reliably in their preferences for arousal. Zuckerman, Kolin, Price & Zoob (1964) identified sensation seeking as a general trait measured by the Sensation Seeking Scale (Form II). Fulker, Eysenck and Zuckerman (1980) report evidence from identical and fraternal twins for high heritability of sensation seeking, but they conclude that at least one-third of the variation in the trait is not inherited.

Others have explored the notion of heritability of personality traits and dimensions. In the University of Minnesota Twin Study (Tellegen, Lykken, Bouchard, Wilcox, Segal & Rich, 1988) researchers administered personality measures to 402 pairs of twins of which 71 pairs were raised apart. They conclude that from 39 to 58 percent of the variance in personality can be attributed to genetic diversity and state: "Consistent with previous reports, but contrary to widely held beliefs, the overall contribution of a common family-environment component was small and negligible for all but 2 of the 14 personality measures" (Tellegen, et al., 1988, p. 1031). The Eysenck research group looked at the heritability of altruism and aggression in a study of 573 twin pairs (Rushton, Fulker, Neale, Nias & Eysenck, 1986). Genes were found to account for at least half of the variance in altruism and aggression.[2]

Sensation Seeking and The Individual

Four sub-components or factors of sensation seeking have been identified in Zuckerman's (1971) work: thrill and adventure seeking (TAS), experience seeking (ES), disinhibition (DIS) and boredom susceptibility (BS). The individual high in TAS seeks sensation through physically risky behaviors that provide unusual sensations and novel experiences such as parachuting and scuba diving. The individual high in ES seeks sensation through a nonconforming lifestyle, e.g. travel, drugs and unconventional friends. DIS represents a drive to seek stimulation through social activities such as parties, drinking and a variety of sex partners. BS is seeking of sensation to avoid boredom and subsequent restlessness.

Zuckerman and Neeb (1980), in a study of 2,000 readers recruited from Psychology Today, found that the greatest variance in sensation seeking is for age and gender. Sensation seeking peaks in the late teens and early twenties and declines with age (Zuckerman,

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[2] For additional studies on the heritability of traits and discussion about the external validity of the findings, see Bouchard, 1984; Carey, Goldsmith, Tellegen, & Gottesman, 1978; Carey & Rice, 1983; Eaves & Young, 1981; Loehlin, 1982; Loehlin & Nichols, 1976; Lykken, 1982; Lykken & Bouchard, 1983/84; Lykken, Telegin & Iacono, 1982; Plomin & Daniels, 1987; Rowe & Plomin, 1981; Scarr, & McCartney, 1983; Scarr, S. Weber, P. L., Weinberg, R. A., & Wittig, M. A., 1981a; Scarr, S. Weber, P. L., Weinberg, R. A., & Wittig, M. A., 1981b; and Zonderman, 1982.

1979). Sensation seeking is higher for males than females. Also, the non-religious, divorced and college-educated score higher than those who are not. Sensation seeking is positively associated with parents' education, but with own and mother's occupation only for women. Black males and males from Slavic groups score higher than females. Past and current smokers score higher on sensation seeking than do nonsmokers. Sensation seekers tend to speed.

There are unique relationships of the four sub-scales with the demographic variables. TAS is related to education and race. ES is related to martial status, education, religion and being from a part of the country other than the Midwest. DIS is related to marital status and religion, and BS is related to education and religion. There are significant differences for males and females high and low in these dimensions for several variables including race, ethnicity, father's education, mother's occupation, father's occupation, and own occupation. The Sensation Seeking Scale appears to be robust for English and American samples (Zuckerman, Eysenck & Eysenck, 1978), but Ridgeway and Russell (1980) question the cross-cultural stability of the scale in a large Canadian sample. Zuckerman and Neeb (1980) have found differences among sensation seekers for visual complexity, music and media preferences and physical activities.

Eysenck's Personality Traits & Risk Taking

The Eysencks' (Eysenck, 1958; Eysenck & Eysenck, 1969) propose a two-factor theory of personality: Extraversion and Neuroticism. They (Eysenck & Eysenck, 1978, 1980) distinguish between impulsiveness and impulsivity; impulsivity represents the broader construct with two sub-components (Extraversion---venturesomeness and Psychoticism--impulsiveness). The broad Impulsivity scale is a part of three sub scales: impulsivity in the narrow sense (IMPn), risk taking and non-planning. IMPn includes items such as buying on impulse, and doing and saying things without stopping to think. Risk taking represents questions asking about enjoyment of risks, and likelihood of taking a dare. The non-planning measures ask how carefully plans are made and how much planning is liked or enjoyed.

Zuckerman (1979) found positive associations between his sensation-seeking factors as well as the total scale with the Impulsivity Scale, but there are exceptions for IMPn and TAS, IMPn and ES and Non-planning and DIS. In another study, Eysenck and Zuckerman (1978) explored the relationship between sensation seeking and the Eysencks' personality factors in American and English samples. Neuroticism appears to have no relationship with sensation seeking, but Psychoticism and Extraversion are correlated with the overall Sensation-Seeking Scale (SSS). Psychoticism is associated with all of the Zuckerman subscales except TAS. Extraversion is most strongly correlated with DIS. They conclude that sensation seeking is a trait that lies between the Psychoticism and Extraversion dimensions; sensation seeking is "an uninhibited, nonconforming, impulsive, dominant type of extraversion" (p. 485).

Corulla (1988) investigated the relationship between the Sensation Seeking Scale (SSS-Form V) and the Eysencks' personality measures (EPG-R) and Impulsiveness (1.7) Scale. He concludes that the Eysencks' dimensions and the Zuckerman SSS are orthogonal dimensions of personality and the SSS measures something not included in the personality scale of the Impulsiveness questionnaire.

Novelty Seeking

Pearson (1970) presents a construct called novelty seeking or exploratory behavior that seems to bear a relationship to sensation seeking. (See also, Edwards, 1966; Garlington & Shimona, 1964; Jackson, 1967; Penny & Reinehr, 1966.) Novelty seeking is defined as a tendency to avoid novel experiences, i.e., a disposition toward change, or preferring new and unexpected experiences versus avoiding those experiences. Pearson proposes four sub-components of novelty seeking: external sensation (liking physical activities): internal sensation (liking unusual dreams, fantasy or internally generated feelings); external cognition (liking to find out facts and how things work); and internal cognition (liking thoughts focused on explanatory principles). For U.S. Air Force personnel, external sensation is correlated with the SSS while internal sensation is only moderately correlated with sensation seeking.

Uncertainty Orientation

Uncertainty orientation is another concept that shares a causal link with risk taking and, perhaps, sensation seeking. Sorrentino and Short (1986) argue that because uncertainty is inherent in risk situations, the individual difference variable they call uncertainty orientation influences risk taking. Certainty-oriented people do not like ambiguity, are careful and cautious, and avoid unpredictability; they are low risk takers. Uncertainty-oriented people, on the other hand, like some ambiguity in their lives and can be seen as risk takers who thrive on unpredictability.

Sorrentino and Hewitt (1984) tested for differences in the way uncertainty-oriented and certainty-oriented people approach personally relevant information. They found that an uncertainty orientation led to activities to resolve uncertainty about a new and potentially important ability, although a certainty orientation caused people to actually chose to undertake alternate activity that would tell them nothing about this ability. Sorrentino, Bobocel, Gitta, Olson and Hewitt (1988) found that personal relevance does not increase systematic processing for all persons; uncertainty oriented people are motivated to engage in systematic processing when personal relevance increases, whereas certainty-oriented persons become more motivated when personal relevance decreases.

Risk-Taking Predispositions Defined

We define a risk-taking predisposition from the actor's perspective; something is a risk only if it is perceived to have some likelihood of negative consequences, which can include the loss of a potential reward as well as a punishment. A risk-taking predisposition occurs [illegible] and risk aversive but, in fact, [illegible] tendency to engage in behaviors that the actor und[illegible] ment or loss of reward, or other negative consequen[illegible] risk-taking predisposition with risk seeking; seeking of risk implies that it is the risk itself that is the end or motive rather than such things as the arousal associated with the risk, the perceived likelihood that the risk will result in a reward or the social approval that might be received from those who give attention to the risk taker.

Risk-Taking Predispositions and Information Processing

We (Ferguson & Valenti, 1988; Ferguson, Valenti & Melwani, in press; Ferguson & Valenti, 1990) have found that risk-taking predispositions affect processing of information about risks. Ferguson, Valenti & Melwani (in press) in a large sample population of 1,323 subjects validated measures of risk taking. Although five factors emerged in this study, the first three have proven to be the most robust in later work and have shown the most interesting effects in interaction with variation in messages. The first factor is called Adventurous risk taking (similar to Eysenck's impulsiveness) and represents self reports of enjoyment of risk, new and exciting experiences, risk taking to broaden one's horizon and being adventurous. The second factor, called Rebellious risk taking (similar to the factor called disinhibition by Zuckerman) represents enjoyment of wild parties, drinking, use of drugs and dislike of rules. The third factor is called Impulsive risk taking (similar to a factor called impulsivity in the narrow sense [IMPn] by the Eysencks) and represents reports of speaking and behaving without thought, being guided by feelings rather than facts, and enjoyment of being carried away.

Information Seeking and the Adventurous Risk Taker

Primarily, (Ferguson & Valenti, 1989; Ferguson, Valenti & Melwani, in press; Ferguson & Valenti, 1990) adventurous risk taking is associated with being young, single, male and unlikely to attend church regularly. Adventurous risk takers have positive attitudes about their health, want to be physically fit, feel in control of their health, hold strong beliefs about health, and believe that illness results from improper diet or exercise. These risk takers like thinking, they tend to be high in need for cognition, they believe thinking is fun, and they seek challenging situations that require thinking. Although they do not watch television very much, they do listen to the radio. Some of the sources they prefer and who would be likely to have their confidence include their physician and the Environmental Protection Agency. In a large random sample (N = 511) field experiment, Ferguson and Valenti (1990) report that adventurousness interacts with variation in the message format and the target to affect information seeking about the risk; for those low in adventurousness, targeting children as at risk rather than adults results in more information seeking, but not for those high in adventurousness.

Information Seeking and the Rebellious Risk Taker

Ferguson and Valenti (1989); Ferguson, Valenti and Melwani, (in press) and Ferguson and Valenti (1990) have found that the rebellious risk taker is likely to be young, single, and male; have an income below $20,000; have previously smoked; and come from a Catholic or Jewish or non-religious background, and rarely attend church or synagogue. They are high users of radio and greatly rely on radio, but do not use media for health information.

Rebellious risk taking tends to be negatively associated with information seeking (in this case about the risks associated with drinking contaminated water), (Ferguson, Valenti & Melwani, in press; Ferguson & Valenti, 1990). Also, rebelliousness interacts with changes in the message to affect both information seeking and concern about the risk. Those high in rebelliousness respond more favorably to a state agency as a message source than they do to non-local sources, but this is not true for those low in rebelliousness.

Format also interacts with rebelliousness to affect concern. Those high in rebelliousness respond with more concern for a brochure message although those low in rebelliousness respond with more concern for a newspaper message. For those high in rebelliousness, the greatest information seeking occurs when the source is a state agency and the message is a newspaper, and the least concern occurs for a newspaper message from the Surgeon General.

Information Seeking and the Impulsive Risk Taker

Impulsive risk taking is associated with being single and female, with less than a college education, an income below $20,000, and with currently or previously smoking (Ferguson, Valenti & Melwani, in press; Ferguson & Valenti, 1990). Impulsive risk takers do not like to think about their health problems specifically or about health generally and they have negative feelings about their health. They do not feel in control; they get depressed about their health, and they believe that illness is out of their control. These risk takers do not like to think; they have a low need for cognition and try to avoid thinking situations. Thinking is not fun for them.

Principally, impulsiveness is negatively associated with concern about both health and environmental risks. Impulsiveness interacts with source, target and format of the message to affect concern. Those high in impulsiveness have the most concern for a message, regardless of whether the target is a child or an adult, when the message is from a state agency and in a brochure. Lowest concern occurs for high impulsives when the EPA is the source, the target is the adult and the message is in a newspaper; or for a message from the Surgeon General, the adult as target and the message in a brochure.

As noted in the introduction, this research paper explores the question of the relationship between a risk-taking predisposition and concern and information seeking about health and environmental risks. Based on our earlier findings of the effects of risk-taking traits on processing of information about environmental risks, we are now asking the question of whether these types of risk taking are related to concerns about different types of risks such as those that are primarily under your control, those that directly result in health deficits or those that are longer-term risks to the environment. Below we present hypotheses derived from our earlier studies on the relationship of adventurous, impulsive and rebellious risk taking to message variation.

Hypotheses

We do not hypothesize main effects for **adventurousness** on concern about any type of risks. Adventurous risk takers are information seekers who see themselves as in control of what happens to them. Thus, we expect these riskers will not vary in levels of concern, from those who are not adventurous, about health and environmental risks ordinarily.[3] We do expect a main effect, on the other hand, for adventurousness on information seeking about risks; high adventurous risk takers are likely to seek more information about risks and to be better informed than low adventurous risk takers. We do not hypothesize differences for types of risk, however. These well-educated risk takers will be curious normally and we expect no less curious about any one particular risk than any other risk.

We anticipate main effects for both **impulsiveness** and **rebelliousness** on concern about risks overall; the relationship will be an inverse one--as impulsive or rebellious risk taking increases, concern will decrease. We expect the specific type of risk to show significant differences for these two risk-taking factors. **Rebellious** risk takers will have lower levels of concern for those risks they see as largely within one's own control than they will of other risks. **Impulsive** risk takers feel completely out of control, so we would expect them to have higher levels of concern as a rule than will rebellious risk takers. Impulsiveness and rebelliousness are also expected to affect information seeking in a negative linear manner, i.e., the higher the impulsiveness or rebelliousness, the lower the information seeking.

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[3] This is not presented as a formal hypothesis, however, because the research hypothesis is the null and thus untestable as a research hypothesis.

Finally, we are not hypothesizing any interactions for the impulsive and rebellious risk-taking factors. We anticipate that those high in both impulsiveness and rebelliousness risk taking will be lowest in both concern and information seeking, regardless of the type of risk, and those low in both these traits will be highest in both concern and information seeking; thus we expect additive rather than interactive effects.

METHODOLOGY

Data for this study are gathered from adults attending a rural Florida county fair in November, 1989. The researchers rented an 8' X 10' booth in the exhibition hall. Adults attending the fair were invited to participate in the study. The questionnaire took about 20 minutes to complete and asked respondents about their use of the mass media, their predispositions toward risk taking, their concern about 30 risky situations, the likelihood they would seek information about the same 30 situations, and demographic information.

The questionnaire was designed to be primarily self-paced and self-administered. Students in two sections of an undergraduate public opinion research and theory course were trained to solicit respondents, invite them to be seated and provide a brief explanation of the study. Following completion of the study, respondents were debriefed.

Demographics of Respondents

Respondents were asked their gender, marital status, how many under 18 live in their home, when they were born, how much formal education they completed, their religion, how often they attend church or synagogue, and their personal income. A total of 257 adults (50.6% males and 49.4% females) filled out the questionnaires. The mean age of the respondents is 33. Over half (59.4%) are married, 28.5 percent are single, and 12 percent are divorced, widowed or other. For formal education, 21 percent had a high school degree or less, 40.1 percent had some college, 26.8 percent had a college degree and 12 percent had more than a 4-year degree. The average personal income for the respondents ranged from $20,000 to $29,000. Respondents represent different religious backgrounds: 68.2 percent were Protestant, 17.3 percent were Catholic, 2 percent were Jewish, and 12.5 percent indicated no religion.

Risk-Taking Predispositions

To measure risk-taking predispositions, we asked respondents to identify (how like or unlike them) with 21 statements about risk taking. Most of these statements are identical to those used in earlier research (Ferguson & Valenti, 1990; Ferguson & Valenti, 1989; Ferguson & Valenti, 1988; Ferguson, Valenti & Melwani, 1989; Ferguson, Valenti & Melwani, in press; Valenti & Ferguson, 1990; Valenti & Ferguson, 1988a; Valenti & Ferguson, 1988b; Valenti & Ferguson, 1987).[4] The items found to represent adventurous risk taking in our earlier research load on the first factor, those found to represent impulsive risk taking load on the second and those found to represent rebellious risk taking load on the third factor. Table 1 presents the factor loadings, means and standard deviations and Cronbach's alpha for indices constructed from the items.

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[4] As with earlier research, these items are submitted to a factor analysis, principal factor, varimax and oblique rotations. Four of the eigenvalues are greater than 1.0, but a scree plot suggested that a three-factor solution is the most reasonable interpretation. A reanalysis was conducted forcing a three-factor solution. The first factor accounted for 26.5 percent of the variance, the second 10.5 percent and the third 7.2 percent. Both the varimax and oblique rotation interpretations were examined. There was very little difference between the two rotations so the varimax interpretation is presented here.

A summed averaged index was created to represent the items loading on each factor. The intercorrelations between the risk-taking indices are moderate and positive: adventurousness with rebelliousness, $\underline{r} = .48$, $\underline{p} \leq .001$; adventurousness with impulsiveness, $\underline{r} = .35$, $\underline{p} \leq .001$; and impulsiveness with rebelliousness, $\underline{r} = .27$, $\underline{p} \leq .001$.[5]

Risky Situations

To measure concern about different risk situations, a list of risky situations was generated from earlier research on perceptions of risk (Slovic, 1987; Slovic, 1986). Based upon the findings of the Slovic research, we chose items to represent those things that the public believes are associated with a high risk of dying (i.e., nuclear power, motor vehicle accidents, handguns, smoking, and drinking alcohol) as well as those things that actually have high fatality rates, such as cancer. In addition, we specifically chose items that are believed to vary on two dimensions: how unknown or known the effects of the risk are (i.e., DNA research and food irradiation versus handguns and motor vehicles) and how voluntary or uncontrollable the risks are (i.e., sunbathing and eating high cholesterol foods versus pesticides and DDT). Following several pretests to narrow the number of items and to make sure we had items representing both perceived and actual risks, known and unknown risks, and controllable and uncontrollable risks, we settled upon 30 environmental and health risks. Table 2 presents the 30 items used. The items were randomly ordered after selection. Respondents were told: "Next we want you to think about risks in your environment. Please circle the number that responds to your initial reaction. How concerned would you be about the risks associated with: . . . ". The scale ranged from 1 to 7, with the anchors, "Not very concerned" and "Very concerned." Table 2 presents the items used in the study.

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[5] Cronbach's alpha for the indices ranged from .82 to 84.

The 30 items representing concern about risky situations were factor analyzed. Five of the eigenvalues are greater than 1.0, but examination of the scree plot suggested a four-factor solution. Thus, a reanalysis was conducted with four factors forced. The first factor accounted for 35.3 percent of the variance, the second 5.6 percent, the third 5.3 percent and the fourth 2.5 percent. Table 2 presents the factor loadings for this analysis.

The first factor represents what we call "concern about risks to the environment" with ozone layer destruction, industrial water pollution and the greenhouse effect loading the highest. The second factor is labeled "avoidable risks"; it represents risks that individuals can choose to take or choose to avoid, such as eating high cholesterol foods, not exercising, living in a flood plain, drinking alcohol, sunbathing, and pregnancy. The third factor represents risks often associated with sexual or drug-related behaviors: syphilis, AIDS, and infectious (or viral) hepatitis. The fourth factor represents risks associated with guns: police work, owning a handgun, and going hunting. Several items loaded on more than one factor and are not used in constructing the indices, but are explored in separate analyses.

The items clearly loading on a factor are summed and averaged into indices representing Environmental Concerns, Avoidable Concerns, Sex/Drug Concerns, and Gun-related Concerns.[6] Correlations between the four summed and averaged indices are Environmental Concerns with 1) Avoidable Concerns, $\underline{r} = .53$, $\underline{p} \leq .001$, 2) Sex/Drug Concerns, $\underline{r} = .48$, $\underline{p} \leq .001$, 3) Gun-related Concerns, $\underline{r} = .43$, $\underline{p} \leq .001$; Avoidable Concerns with 1) Sex/Drug Concerns, $\underline{r} = .38$, $\underline{p} \leq .001$, 2) Gun-related Concerns, $\underline{r} = .47$, $\underline{p} \leq .001$; and Sex/Drug Concerns with Gun-related Concerns, $\underline{r} = .39$, $\underline{p} \leq .001$.

An overall Risk Concern index was created by summing and averaging over all 30 of the risk items.[7] The overall index is correlated with the individual risk concern indices in the following manner: Environmental Concerns, $r = .87$, $p \le .001$; Avoidable Concerns, $r = .75$, $p \le .001$; Sex/Drug Concerns, $r = .69$, $p \le .001$; and Gun-related Concerns, $r = .46$, $p \le .001$.

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[6] Cronbach's standardized alpha for each index ranges from .64 to .93.

[7] Cronbach's alpha (standardized) for the overall index of concern about risky situations is .94.

Information Seeking About Risky Situations

To measure the likelihood of information seeking about these risky situations, we presented respondents with the same 30 items (again randomized) and asked, "How likely would you be to read an article or watch a program about the risks associated with: . . .". The scale was from 1 to 7 and is anchored with "Not very likely" and "Very likely." Using the results from the factor analysis for the concerns about risky situations, these items are summed and averaged into information-seeking indices representing Environmental Risk Information Seeking, Avoidable Risk Information Seeking, Sex/Drug Risk Information Seeking and Gun-related Risk Information Seeking.[8] We created an overall information-seeking-about-risky-situations index by summing and averaging over all 30 items.[9]

The intercorrelations among these information-seeking indices are Environmental with Avoidable, $r = .64$, $p \le .001$; Environmental with Sex-Drug, $r = .63$, $p \le .001$; Environmental with Gun-related $r = .38$, $p \le .001$, Environmental with Overall Information Seeking, $r = .89$, $p \le .001$; Avoidable with Sex-Drug, $r = .67$, $p \le .001$; Avoidable with Gun-related, $r = .53$, $p \le .001$; Avoidable with Overall Information Seeking, $r = .86$, $p \le .001$; Sex-Drug with Gun-related, $r = .39$, $p \le .001$; Sex-Drug with Overall Information Seeking, $r = .81$, $p \le .001$; and Gun-related with Overall Information Seeking, $r = .60$, $p \le .001$.

Risky Behaviors

We asked respondents about behaviors that could be argued to represent either risk taking or risk avoidance; we asked if they currently smoke or had smoked in the past, the speed at which they drive on a 55 mph highway, when they last visited a doctor for a physical checkup, how likely they would be to use an inexpensive cancer home-testing kit, and how likely they would be to get a free physical checkup at the fair.

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[8] Cronbach's alphas (standardized) were .94, .83, .85, and .63.

[9] Cronbach's alpha (standardized) for this index was .96.

Media Use and Preference

Respondents reported their use of television, newspapers, magazines, and radio: "In an average week how many days would you say you watch television" (read a newspaper, read a magazine, listen to radio)? For a measure of the amount of reliance on the medium, respondents also indicated, on a scale of 1 to 7, "How would you feel if you were not able to watch your favorite program" (read your favorite newspaper, read your favorite magazine, or listen to your favorite radio station/program)? The scale is anchored with "I wouldn't miss it at all" and "I would be lost without it." To learn about the type of media respondents preferred they were asked, "Of the television programs you usually watch, what is the one program you watch the most often" (the one newspaper you read most often, the one magazine you read most often, and the one station or program you listen to most often)? Finally, to gauge how likely respondents were normally to use the media for health and environmental information usually they were asked on a scale, from 1 to 7, anchored with "Not very likely" and "Very likely," how likely they would be to watch television programs (read newspaper articles, read magazine articles and listen to radio programs) about: a. health topics, b. environmental topics.

FINDINGS

The hypotheses in this study are for additive effects for the risk-taking predispositions rather than interactive effects. Thus, it is expected that one type of risk taking, such as adventurousness, would add to the effects of another risk-taking predisposition, but not in a multiplicative manner.[10] The risk-taking classifications were based upon data from a large population study (N = 1323) (Ferguson, Valenti, & Melwani, in press). Using the medians from that study, median splits are done for the three risk-taking indices.[11] For this sample, 51.8 percent of the sample (N = 133) is categorized as low in adventurousness; 49.8 percent (N = 128) of the respondents is classified as low in impulsiveness; and 75.5 percent (N = 194) of the respondents is classified as low in rebelliousness.

Hypotheses Tests

First the hypotheses are tested for the overall risk concern variable representing all 30 risky situations and then for the individual risky situation concern factors.

Concern About Risky Situations Overall

There are no main effects for any of the three risk-taking predispositions on overall concern about risky situations, but there is a significant interaction [$F(1,249)=4.60$, $p<.033$] between impulsiveness and rebelliousness on concern (Table 3). For those low in rebelliousness there is no difference in the concern they express averaged over all 30 risk situations, regardless of level of impulsiveness. On the other hand, those high in rebelliousness and low in impulsiveness have the highest levels of concern (M = 4.6). Concern, as is predicted by a simple additive effects model, is at its lowest for those both high in impulsiveness and rebelliousness (M = 3.9), but it is not highest for low in both types of risk taking.

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[10] The main effects hypotheses are tested using a ANOVA (SPSSX) approach with a probability level for the F-test of .05. Tests for main effects and interactions are performed with the classic experimental model for computing sums of squares with main effects assessed first followed by interactions.

[11] The large sample medians used are: adventurousness = 4.68, impulsiveness = 3.31 and rebelliousness = 3.21.

Concern About Specific Types of Risks

When the same hypotheses are tested for the four factors associated with the 30 risky situations (environmental concerns, avoidable concerns, sex-drug concerns and gun-related risk concerns), again, no main effects are observed for any of these four concerns for the three risk-taking predispositions. There is a significant interaction [$F(1,249)=9.74$, $p<.002$] between impulsiveness and rebelliousness on concern about environmental risk, but not about the other three types of risky situations. The effect of the interaction is similar to that reported for the overall risky situations concern index. Highest concern about environmental risks comes from those high in rebelliousness and low in impulsiveness ($M = 5.4$), and the lowest concern comes from those high in both rebelliousness and in impulsiveness ($M = 4.2$, Table 4).

Information Seeking About Risks

We also found no significant main effects for the three risk-taking constructs on information seeking about risky situations, but as reported earlier for the concern about risky situations, there is a significant interaction between impulsiveness and rebelliousness [$F(1,244)=5.11$, $p<.025$. Table 5] on information seeking; there is no difference between those low in rebelliousness regardless of level of impulsiveness ($M = 3.9$ & 4.0), while for those high in rebelliousness, most information seeking occurs for those low in impulsiveness ($M = 4.4$) and the least occurs for those high in impulsiveness ($M = 3.5$).

We also tested for the effects of these risk-taking predispositions on the four types of risky situation information seeking. Again, there is a significant interaction of impulsiveness and rebelliousness on seeking of information about environmental risks [$F(1,241,=11.55$, $p<.001$, Table 6] and a near significant interaction for information seeking about sex-drug related risks [$F(1,238)=3.44$, $p<.065$, Table 7]. As found for concern, those high in rebelliousness but low in impulsiveness are the most likely to seek information (M = 5.1), and those in high in impulsiveness are the least likely (M = 3.4). There is no difference in likelihood of information seeking about environmental risks for those low in rebelliousness regardless of their impulsiveness scores (M = 4.3). The same pattern emerges for the near significant relationship of rebelliousness and impulsiveness on information seeking about syphilis, AIDS, or hepatitis. Those high in rebelliousness but low in impulsiveness are more likely to say they would read or watch programs about these risks (M = 4.7), and those high in rebelliousness and high in impulsiveness are less likely to seek information (M = 4.0) as are those low in rebelliousness and low in impulsiveness (M = 4.0).

Earlier we hypothesized main effects in levels of concern for the two risk-taking types. Since we found interactions but no main effects for concern, it would be misleading to continue to explore these effects only at the main effect level because the level of one's impulsiveness actually changes the effects of rebelliousness.

Additional Analyses

Based upon the lack of main effects and the unexpected interactions, the next step was to try to understand our interactive effects by exploring these interactions with other variables.[12] We first examined all 30 items separately for both main effects and interactions. The only significant main effect is for adventurousness on concern about the risk of driving a car. Those low in adventurousness express highest levels of concern about this risk (Table 8).

Individually, three of the nine variables used to construct the environmental risk concern factor produced significant interactions between rebelliousness and impulsiveness at the more restrictive .01 level: the greenhouse effect, pesticide residues on food, and food irradiation. These effects all closely resemble those reported for the overall environmental risk factor. The same effects were found for use of DDT. Concern is highest for those low in impulsiveness and high in rebelliousness and lowest for those high in rebelliousness and high in impulsiveness (Tables 9, 10, 11, and 12). Contamination of beaches, ozone layer destruction, industrial water pollution, and living near a gas storage tank all had near significant interactions--between .016 and .012--with an effects pattern identical to that reported for the other variables.

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[12] The alpha level was changed from .05 to .01, to reduce the likelihood of a Type (false positive) error.

Media Use and the Interaction of Impulsive and Rebellious Risk Taking

After assuring ourselves that these interaction effects hold primarily for the environmental risk concerns and seem to be consistent for nearly every one all the environmental factors except indoor radon and air pollution from vehicle exhaust, we then examined the interactions of rebellious and impulsive risk taking for the other media variables in our study.

First we report on the interactive effects for television, newspaper, magazine, and radio use, and preference, returning to the .05 level of significance. The only significant main effect for the number of days television is used is for rebelliousness [$\underline{F}(1,254)=5.49$, $\underline{p} \leq .020$]. Those low in rebelliousness also say they watch television more days on the average ($\underline{M} = 5.3$) than do those high in rebelliousness ($\underline{M} = 4.6$). The interaction of rebelliousness and impulsiveness is significant for the likelihood of watching television for environmental topics ([$\underline{F}(1,249)=4.92$, $\underline{p} \leq .027$] and near significant for watching television for health information [$\underline{F}(1,250)=3.49$, $\underline{p} \leq .063$]. The patterns reported above are repeated. Those high in rebelliousness and high in impulsiveness are the least likely to watch television for health or environmental information, and those high in rebelliousness but low in impulsiveness are the most likely (Table 13). We did not find any interactive relationship between the type of television programming preferred and these two risk-taking predispositions.

For newspaper preference and use, there are no main or interactive effects of the risk-taking measures on the number of days a newspaper is read, or how much the newspaper would be missed, if not available. There is, however, a main effect for rebelliousness on the likelihood of reading a newspaper for health topics [$F(1,248)=4.26$, $p\leq.040$]. Those high in rebelliousness say they are less likely to read a newspaper for health ($M = 3.9$) than did those low in rebelliousness ($M = 4.4$). Also, there is an interactive effect for rebelliousness and impulsiveness on likelihood of reading a newspaper for environmental topics [$F(1,250)=4.64$, $p\leq.032$, Table 14]. Those high in rebelliousness but low in impulsiveness indicated the greatest likelihood of reading for environmental topics ($M = 5.2$) and those high in rebelliousness and high in impulsiveness indicated the least likelihood ($M = 4.2$). We also found an interactive difference for the type of newspaper read. Those low in impulsiveness and rebelliousness, are most likely to be readers of local newspapers, those low in impulsiveness and high in rebelliousness are most likely to be readers of national newspapers, and those high in both types of risk taking are likely to read other than local in-state newspapers (Table 15).

Magazine use and preferences revealed differences similar to those for newspapers. There are no effects on the number of days per week a magazine is read or on how much the favorite magazine would be missed. Again, we found a main effect for rebelliousness on the likelihood of reading about health topics [$F(1,243)=4.05$, $p\leq.045$]. Those high in rebelliousness are less likely to read a magazine for health topics ($M = 3.7$) compared to those low in rebelliousness ($M = 4.3$). Also, we found a significant interaction between impulsiveness and rebelliousness on the likelihood of reading a magazine for environmental information [$F(1,244)=6.37$, $p\leq.012$, Table 16]. Those high in rebelliousness and low in impulsiveness are more likely to report reading for environmental topics ($\underline{M} = 5.0$) than are those high in both ($\underline{M} = 3.6$). We also find a significant interaction for these two variables on the type of magazine preferred. General interest magazines are most likely to be preferred by those low in both variables. Men's and sports magazines are most likely to be preferred by those high in both rebelliousness and impulsiveness. News magazines are most preferred by those high in rebelliousness and low in impulsiveness, and women's magazines are most likely to be preferred by those low in rebelliousness and high in impulsiveness (Table 17).

Finally, for radio preference and use, there are no significant effects of the risk-taking predispositions on the number of days radio is listened to or on how likely the radio is to be used for health information. Those high in rebelliousness and low in impulsiveness indicated that they would miss their favorite station or program the most ($\underline{M} = 5.0$) and those low in both risk-taking variables would miss it the least ($\underline{M} = 3.5$). The relationship between impulsiveness and rebelliousness on how likely respondents are to listen to the radio for environmental topics is also non-additive [$\underline{F}(1,243) = 6.92$, $\underline{p} \leq .009$, Table 18]. Those high in rebelliousness and low in impulsiveness indicated greater likelihood of listening to radio for environmental topics ($\underline{M} = 4.4$), and those high in both rebelliousness and impulsiveness indicated the least likelihood ($\underline{M} = 2.7$). There are no significant differences for type of radio programming preferred. As a matter of interest, however, classical programming has the greatest proportion of those classified as low impulsive--high rebellious. Country music stations and easy listening stations have the greatest proportions of those classified as high impulsive--low rebellious. Rock, soul, and jazz stations have the greatest proportion of those classified as high in both risk-taking factors, and top 40 and Christian-gospel stations have the greatest proportion of those classified as low in both types of risk taking (Table 19).

Demographics and the Interaction of Impulsiveness and Rebelliousness

This section reports the association between the demographic variables and risk taking. First, there are no additive or interactive effects for the risk-taking variables and religion and income, but the risk-taking constructs have systematic relationships with age, gender, education, marital status, the number of children living at home and church attendance.

There is a significant main effect for impulsive risk taking with age [$F(1,253)=7.78$, $p \leq .006$]; those low in impulsiveness are likely to be older ($M = 35.2$) than are those high in impulsiveness ($M = 30.8$, Table 20). For gender, males are more likely to be low in impulsiveness and high in rebelliousness (65.2%) or high in impulsiveness and in rebelliousness (70.0%) than are females (34.8% and 30%, respectively, Table 21). Education has a systematic association with impulsiveness [$F(1,255)=9.36$, $p \leq .002$, Table 22]; respondents classified as low in impulsiveness have more education ($M = 3.5$) than have those high in impulsiveness ($M = 3.1$). Marital status is related in a non-additive manner to impulsiveness and rebelliousness; those low in both impulsiveness and rebelliousness are more likely to be married. Those low in impulsiveness and high in rebelliousness are less likely to be married. Others likely to be married include those low in rebelliousness and high in impulsiveness. Those most likely to be single include those high in rebelliousness regardless of their level of impulsiveness (Table 23). A different type of interaction for impulsiveness and rebelliousness approached significance for the number of children at home [$F(1,228)=3.37$, $p \leq .068$, Table 24]. Those high in both rebelliousness and impulsiveness have on the average slightly over twice as many children at home ($M = 1.08$) as those high in rebelliousness and low in impulsiveness ($M = .45$). Finally, there is a main effect for rebelliousness on church attendance [$F(1,254)=15.77$, $p \leq .001$, Table 25]. Those low in rebelliousness are more likely to attend church more often ($M = 2.4$) compared to those high in rebelliousness (M = 1.9).

Risky Behaviors and the Interaction of Impulsiveness and Rebelliousness

There are several questions in this study designed to explore the relationship between risk-taking predispositions and behaviors most often agreed to have some known risk. Respondents were asked if they currently smoke. Of those high in rebelliousness and low in impulsiveness, 47.8 percent smoke compared with 29.4 percent for the total sample. For those high in both rebelliousness and impulsiveness, 45 percent currently smoke. On the other hand, for those low in both of these risk-taking predispositions, only 19.0 percent are smokers (Table 26).

Respondents also reported the speed at which they usually drive on a clear 55 mph highway. There is a main effect for rebelliousness [$F(1,253)=16.37$, $p<.001$] and a near significant interaction between rebelliousness and impulsiveness [$F(1,253)=3.04$, $p<.082$, Table 27]. On the average, those high in rebelliousness drive at 64 mph, and those low in rebelliousness drive 60.5 mph on a clear 55 mph posted highway.

We did not find any significant interactions or main effects for the risk-taking variables for the likelihood of purchasing an inexpensive home-testing kit for cancer, the likelihood of getting a free health checkup at the fair, past smoking behaviors, or the last visit to a doctor.

DISCUSSION AND CONCLUSIONS

Summary of Findings

Average levels of concern about all types of risks are highest for those low in impulsive risk taking and high in rebellious risk taking and lowest for those low in both types of risk taking. For environmental risk situations, explored individually, the same effect on concern is found; those lowest in impulsive risk taking and highest in rebellious risk taking report higher levels of concern than do those high in both of these types of risk taking. This effect holds for nearly all the environmental topics studied, but is particularly strong for the greenhouse effect, ozone destruction, pesticides, DDT, and food irradiation.

This interaction between impulsive and rebellious risk taking also affects information seeking about environmental and health risks. Those most likely to read information or watch programming about health issues such as syphilis, AIDS, or hepatitis are low in impulsive risk taking but high in rebellious risk taking. Also, those most likely to use television for environmental risk information are low in impulsive risk taking but high in rebelliousness. Those high in both of these risk-taking predispositions are the least likely to use television for environmental or health risk information.

Local newspapers are read by all risk-taking types, but those high in rebellious risk taking and low in impulsive risk taking are also likely to read national newspapers. These risk-takers report greater use of newspapers for environmental risk information. These are risk takers who read magazines for both kinds of risk information; they more often read sports, news, and men's magazines.

Radio use for environmental and health information differs for those high in rebellious and low in impulsive risk taking; they are more strongly attached to their radio listening habits than other risk-taking types; they say they would listen to programming about the environment on the radio; and they can be found listening to rock, soul or jazz stations, and classical music stations.

As in earlier research, age and gender are correlated with risk taking; those highest in risk taking tend to be young and male. High impulsiveness is associated with being young and having lower levels of education. Those low in both types of risk taking are more likely to be married, and those high in rebellious but low in impulsive risk taking are more likely to be single or divorced. Those high in both types of risk taking have twice as many children at home as those high in rebelliousness, but low in impulsiveness. Those who smoke are more likely to be either high in rebelliousness and low in impulsiveness or high in both.

Limitations

One of the limitations of this study is that it reports correlational data, not panel or field experiment data. This would be a much more serious limitation if it were not a follow-up on two large field experiments (Ferguson, Valenti & Melwani, in press; Ferguson & Valenti, 1990) that previously demonstrated causal links between risk taking and variance in messages on information processing.

The external validity of these findings also deserves question. It is possible that the environmental-versus-health effects differences found here are unique to this population of fairgoers. Although there is no way to assert generalizability without a random sample, the demographic measures reported here demonstrate great diversity in the subject pool.

Another problem arises because the risk-taking measures and the environmental and health concern and information-seeking variables were gathered at the same time. Respondents may have wanted to self present in a consistent way, thus answering the questions as they thought we expected, rather than as they actually felt. Because the interactions are only for the environmental risk concerns, this seems to be an unlikely interpretation. In future correlational studies, care may need to be taken to separate collection of the risk-taking data and measures of levels of concern and information seeking about the environmental and health situations with more time and perhaps other distracting tasks.

Also, this study assumes a relationship between self reports of concern and information seeking and subsequent behavior. Again, this assumption would be more problematic had we not demonstrated relationships between the message variables, risk taking and subsequent behavior in the earlier field experiments.

Finally, because this work follows closely on the heels of two large field experiments with randomly sampled populations and with the same measures of risk taking, those results and the results reported here magnify the importance of continued research on the effects of individual differences in risk-taking predispositions on processing of information about the environment and health.

Conclusions

One of the questions that these findings make pertinent is, What explains the interactive effects of rebelliousness and impulsiveness on concern and information seeking about environmental risks? Put another way, Why do those high in rebelliousness, but not impulsiveness respond with high levels of concern and information seeking, often times higher than those low in both of these risk-taking traits?

The answer lies in understanding how not being impulsive, though yet being rebellious, changes our view of environmental risks. Those low in impulsiveness are thoughtful, think before speaking, are guided by facts rather than feelings, are likely to have relatively high levels of education, have high levels of concern for their health, feel in control of their health, enjoy thinking, and seek situations that require thought and respond positively to the Environmental Protection Agency. For those low in impulsiveness, concern is greatest when messages are delivered in a brochure format with the EPA as a source of the message, or the message is in a newspaper with the Surgeon General as the source. Coupling thoughtfulness and concern for one's health with high rebelliousness has the effect of turning the rebellious risk taker into a message receiver who is concerned about the environment and is likely to seek information about the environment.

Thinking-rebel risk takers are a problematic group for the public relations practitioner. They are risk takers, no doubt. They like to party and to drink, and some use drugs; they speed, and they smoke cigarettes; although they have half as many children as those high in both impulsive and rebellious. They are highly concerned about contamination of beaches, industrial water pollution, ozone layer destruction, living near underground gasoline storage tanks, and pesticide residues on food. Risk takers, they may be, but not with the environment, and they are thinking risk takers. They will need to be convinced government and industry are acting to protect the environment, but their rebellious nature will make them difficult to convince. They are not likely to trust either government or in dustry. These message receivers are unlike the thinking non-rebel. Public relations practitioners will have to find some way to reach beyond the basic distrust these individuals bring to environmental communications. Messages to these risks takers should encourage both thinking and acting, but within the framework of the risk taker. "Think about it. What would you do?" may be a concise way to frame this. The focus should be on a thoughtful rebel.

Coupling impulsiveness with rebelliousness, on the other hand, has the effect of greatly diminishing the probability the risk taker will be concerned about any risks--including health and environmental risks--or will seek information about the risks. These non-thinking rebels will not be willing to work at processing information about the environment--in fact they probably do not care at all about the environment. For them to become an active public for a risk issue would seem highly unlikely. If these risk takers act at all with, either to protect themselves or their loved ones, it will most likely be as a result of identification with the source of the message. A peripheral processing route (Petty & Cacioppo, 1986) would seem the most likely to enhance persuasion for these risk takers. Impulsive rebels may respond to sources like themselves-- other free spirits who do not give them a message about how to become less of a risk taker, but rather focus on how they can stay in control, and still not have to think about their behaviors. Messages to these risk takers will need to be framed as "act, don't think." DO IT is probably as succinct a way to put this as any, but the message or the sender will need to be perceived as "rebellious" in its own way.

Risk Taking as Goal-Directed

We assume that human behavior, even risk taking, is goal-directed; it has some purpose. What appears to some as irrational is perfectly reasonable behavior from the actor's view. The rebellious or impulsive risk taker may seem to be doing dangerous or counterproductive things on the surface, but for the risk taker, these behaviors satisfy some fairly basic need, for example, a desire for some form of control or for arousal. We believe it is imperative for those in public relations or responsible for developing public communication about environmental or health risks to acknowledge these individual differences. Many messages currently directed toward risky situations appear to assume that the main goal is simply to educate; the receiver is not impulsive or rebellious, but rather is a thoughtful person willing to let the message sender exert control over their lives by educating them of the dangers associated with the risk. Thus risk assessments are logically presented, and the individual is told how to reduce the probability of risk--"Use a condom," for example. But the very behavior suggested and the imperative manner in which it is offered may boomerang with those who thrive on being impulsive and refusing to let others have control.

Getting the right message through the right channel from the right source requires first understanding the makeup of the audience and respecting the diversity of receivers. That's not new in communications models or theory, but strategies for communicating with those predisposed to be risk takers have been largely ignored. A credible source for those averse to risks may not be at all credible to a risk taker. A message that is attention getting for a low risk taker, may not be arousing enough for a high risk taker. As we learn more about how different types of risk taking interact, the difficulty of reaching risk takers becomes even more apparent. We need to understand that not only is the risk taker goal-directed, but also what these goals are and how they affect information processing.

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TABLE 1. FACTOR ANALYSIS OF RISK-TAKING PREDISPOSITIONS

	FACTOR LOADINGS				
FACTOR:	1	2	3	Mean	S.D.
ADVENTUROUSNESS					
1) I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	81			4.4	1.8
2) I quite enjoy taking risks.	75			4.0	1.8
3) To broaden my horizons I'm willing to take some risks.	71			4.8	1.6
4) I sometimes like doing things that are a bit frightening.	69			4.3	1.7
5) I'm an adventurous person.	59			5.2	1.5
6) I often do things on the spur of the moment.	45	40		4.4	1.8
7) I like being in charge and not being told what to do.	37			5.2	1.5
8) I avoid taking risks.*	33			4.7	1.8
IMPULSIVENESS					
9) I often speak before thinking things out.		78		3.6	1.8
10) I generally do and say things without stopping to think.		77		3.6	1.8
11) I often get into a jam because I do things without thinking.		75		3.1	1.8
12) Before making up my mind, I consider all the advantages and disadvantages.*		59		3.1	1.5
13) I usually think carefully before doing anything.*		58		3.3	1.6
14) I often get so "carried away" by new and exciting things, that I never think of possible snags.		44	32	3.0	1.5
15) I'm guided more by my feelings than by facts.		38		4.4	1.8
REBELLIOUSNESS					
16) I like wild and uninhibited parties.			78	2.4	1.9
17) Keeping the drinks full is the key to a good party.			77	1.9	1.3
18) I feel better after taking a few drinks.			67	2.2	1.6
19) I enjoy the company of real partiers.			65	2.7	1.7
20) I think people should have a great deal of sexual experience before they get married.	32		49	3.3	2.0
21) I believe in rules and authority.*			30	2.7	1.6
N = 253					
Percent of variance explained	26.5	10.5	7.2		
Eigenvalues	5.6	2.2	1.5		
Cronbach's standardized alpha	.84	.82	.80		

Scale is from 1, "very unlike me" to 7 "very like me" and * indicates reverse coding for this item.

Principal axis factoring, varimax rotation (five iterations)

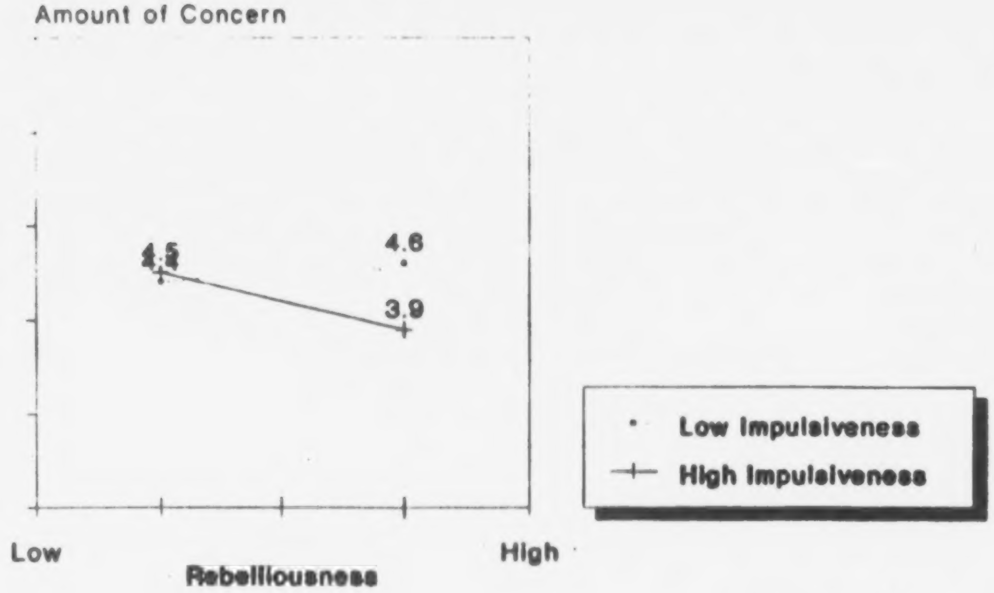
TABLE 2. FACTOR ANALYSIS OF CONCERN ABOUT TYPES OF RISK

		FACTOR LOADINGS					
	FACTOR:	1	2	3	4	Mean	S.D.
ENVIRONMENTAL CONCERNS							
1	Ozone layer destruction	78				5.2	1.9
2)	Industrial water pollution	74				5.4	1.9
3)	The greenhouse effect	71			31	4.8	2.0
4)	Living near an underground gas storage tank	67				4.8	2.2
5)	Contamination of beaches	66				5.7	1.7
6)	Pesticide residues on food	65	44			5.2	1.9
7)	Indoor radon	64	35			4.5	2.1
8)	Food irradiation	64	36			4.2	2.2
9)	Air pollution from vehicle exhaust	60		34		4.7	2.1
AVOIDABLE CONCERNS:							
10)	High cholesterol foods		62			4.4	2.0
11)	Lack of exercise		61			4.7	1.9
12)	Living in a flood plain		55			3.5	2.2
13)	Drinking alcohol		55			3.9	2.4
14)	Sunbathing		52			3.2	2.1
15)	Pregnancy		40			3.7	2.5
SEXUAL OR DRUG-RELATED CONCERNS:							
16)	Getting syphilis			83		4.2	2.6
17)	Getting AIDS			75		4.9	2.4
18)	Getting infectious hepatitis	33		68		4.8	2.3
GUN-RELATED CONCERNS:							
19)	Doing police work				60	3.9	2.2
20)	Owning a handgun				59	3.9	2.4
21)	Going hunting				45	3.1	2.3
MIXED ITEMS:							
22)	Having contaminated drinking water	59		40		5.5	1.8
23)	Nuclear accident radiation	54	36			5.0	2.3
24)	DDT	49		46		4.6	2.2
25)	Microwave oven radiation	30	47			3.0	2.1
26)	Release of genetically altered materials	40		41	33	4.8	2.2
27)	Cancer	34		34		5.7	1.7
28)	Driving a car			32	42	4.3	2.1
29)	Riding a bicycle		39		45	2.5	1.8
30)	Air travel	32			35	3.6	2.1
	N = 245						
	Percent of variance explained	35.3	5.6	5.3	2.5		
	Eigenvalues						
	Cronbach's standardized alpha	.93	.78	.87.	64		

Principal axis factoring, varimax rotation (five iterations)

Table 3. Concern About All Risks

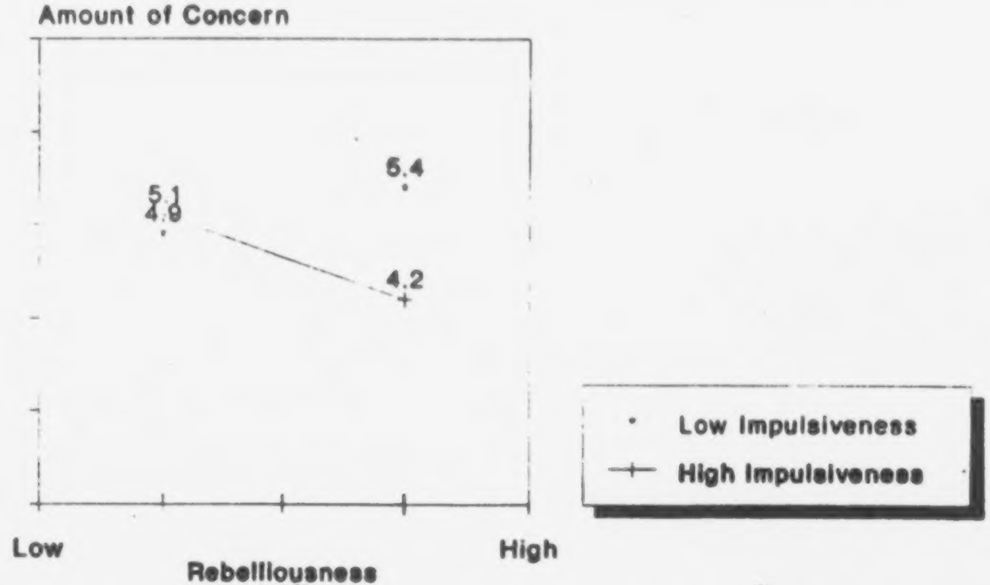
Rebelliousness X Impulsiveness



F(1,249) = 4.60, P< .033

Table 4. Concern About Environmental Risks

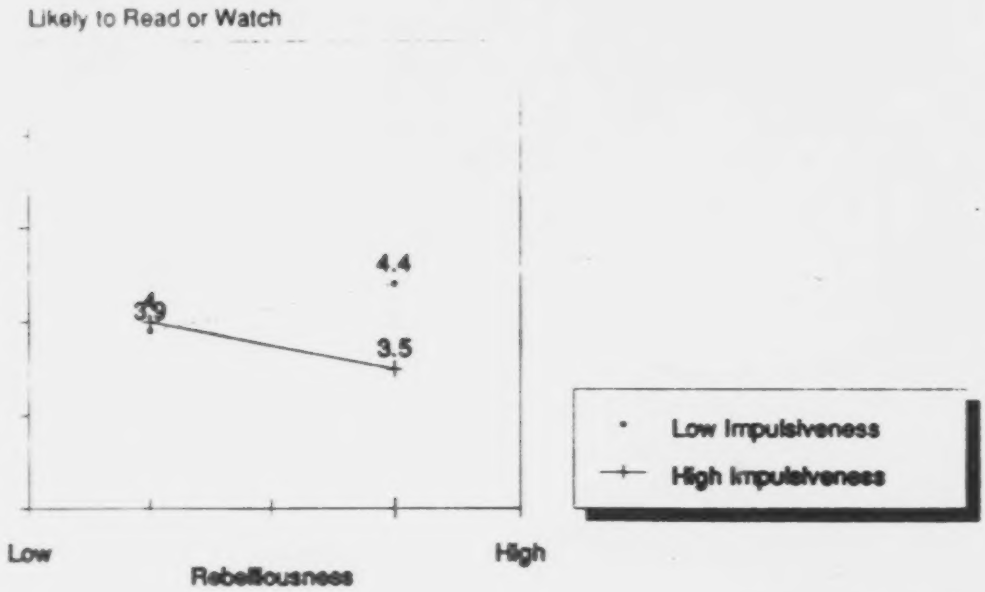
Rebelliousness X Impulsiveness



F(1,249) = 9.74, P< .002

Table 5. Likely to Read or Watch Program About All Risks

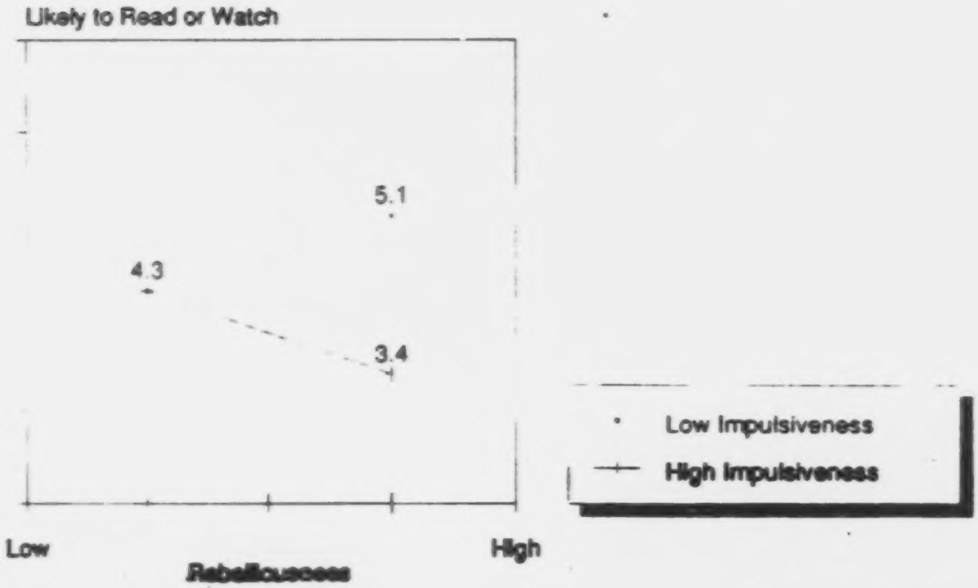
Rebelliousness X Impulsiveness



F(1,244) = 5.11, P< .025

Table 6. Likely to Read or Watch Program About Environmental Risks

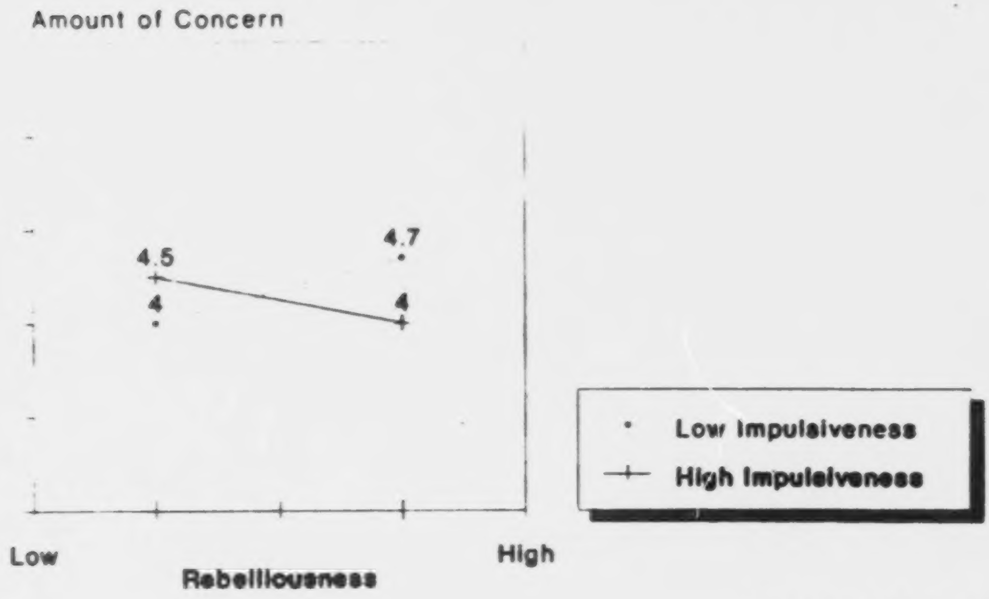
Rebelliousness X Impulsiveness



F(1,241) = 11.55, P< .001

Table 7. Likely to Read or Watch Program About Syphilis, AIDS or Hepatitis

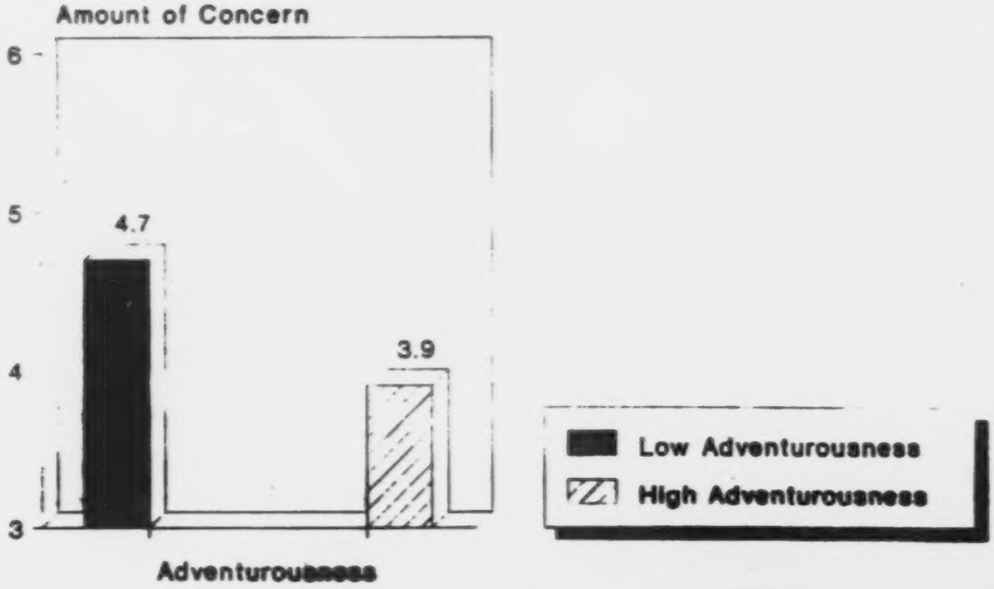
Rebelliousness X Impulsiveness



F(1,238) = 3.44, P< .066

Table 8. Concern About Risk of Driving a Car

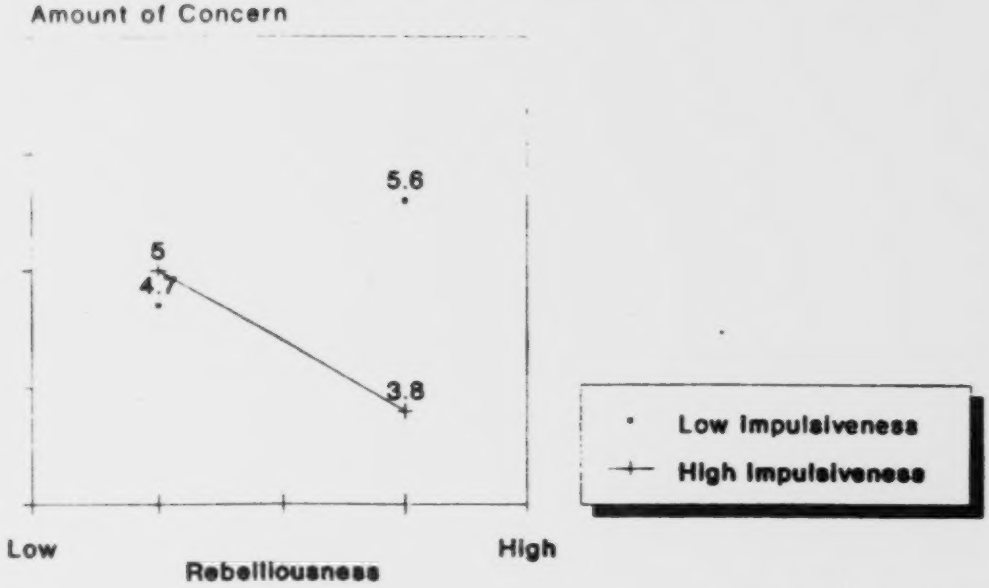
Main Effect for Adventurousness



F(1,240) = 8.22, P<.006

Table 9. Concern About Risk of Greenhouse Effect

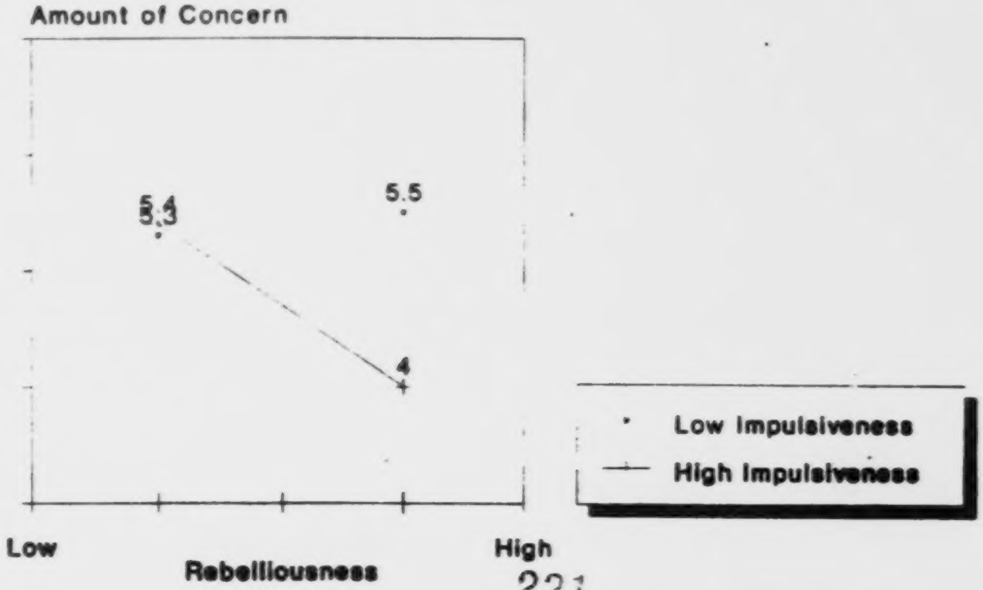
Rebelliousness X Impulsiveness



F(1,237) = 7.31, P< .007

Table 10. Concern About Risk of Pesticide Residues on Food

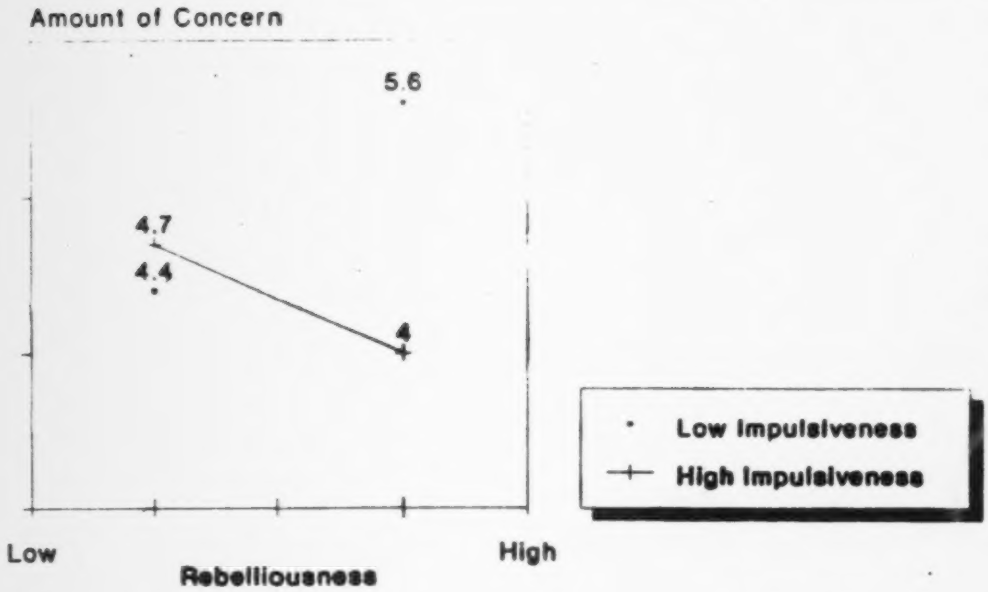
Rebelliousness X Impulsiveness



F(1,248) = 8.38, P< .004

Table 11. Concern About Risk of DDT

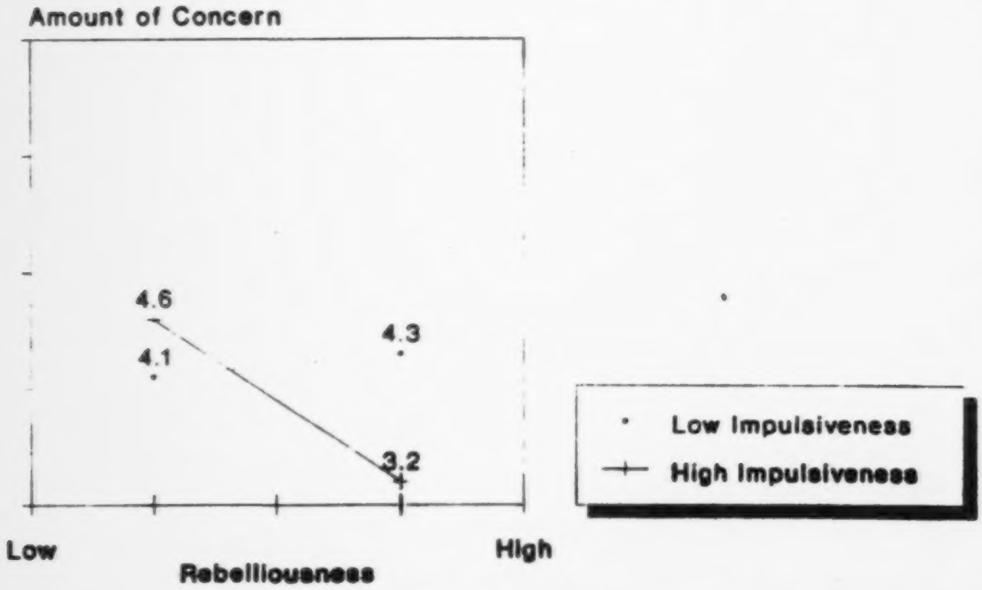
Rebelliousness X Impulsiveness



F(1,237) = 9.48, P< .002

Table 12. Concern About Risk of Food Irradiation

Rebelliousness X Impulsiveness



F(1,237) = 6.77, P< .010

Table 13. Television Preferences and Uses

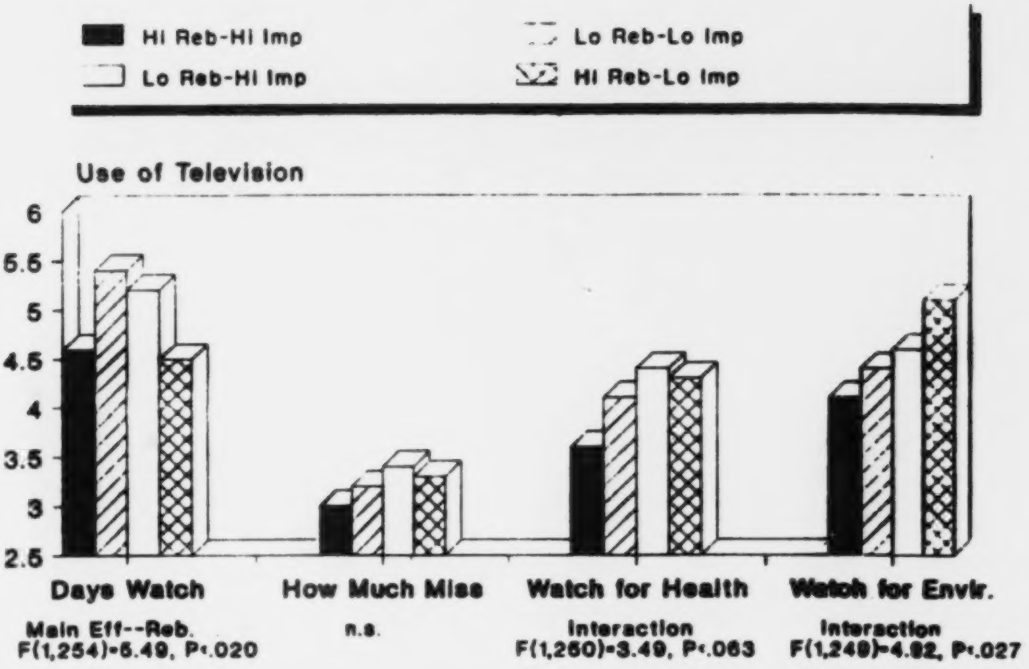


Table 14. Newspaper Preferences And Use

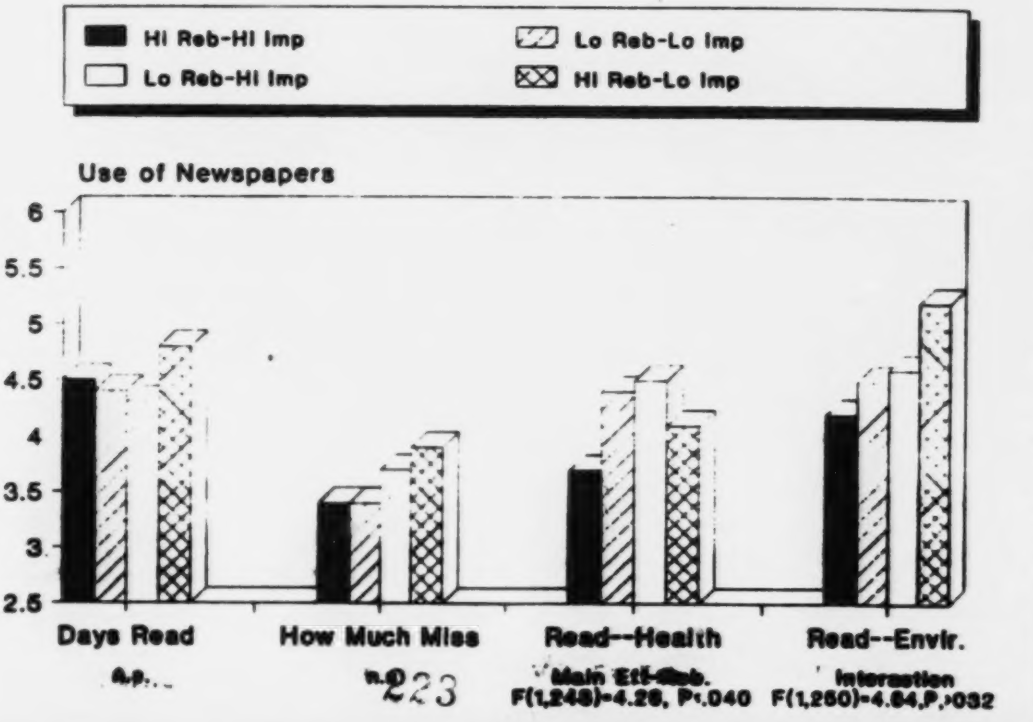


Table 15. Newspaper Read Most Often

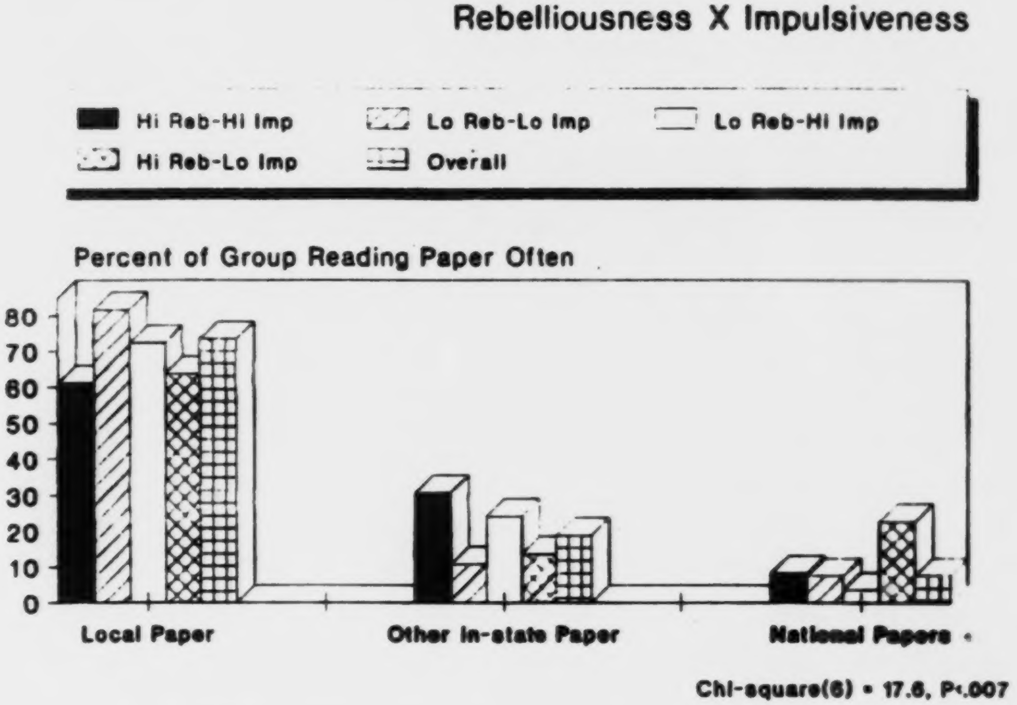


Table 16. Magazine Preferences And Uses

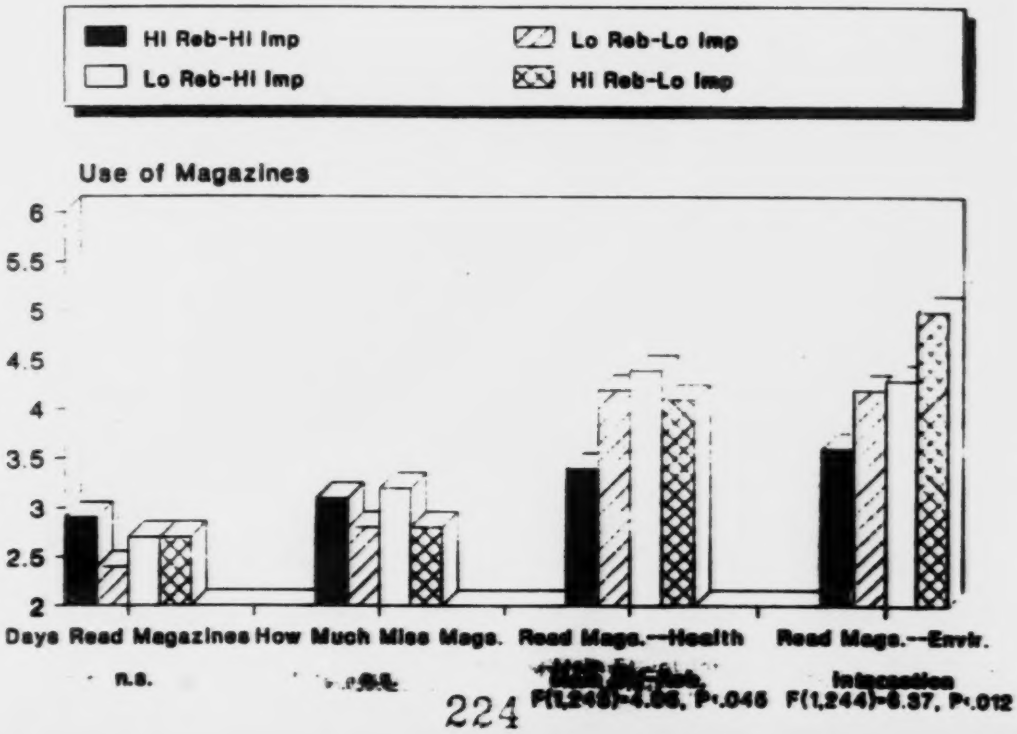


Table 17. Magazine Read Most Often

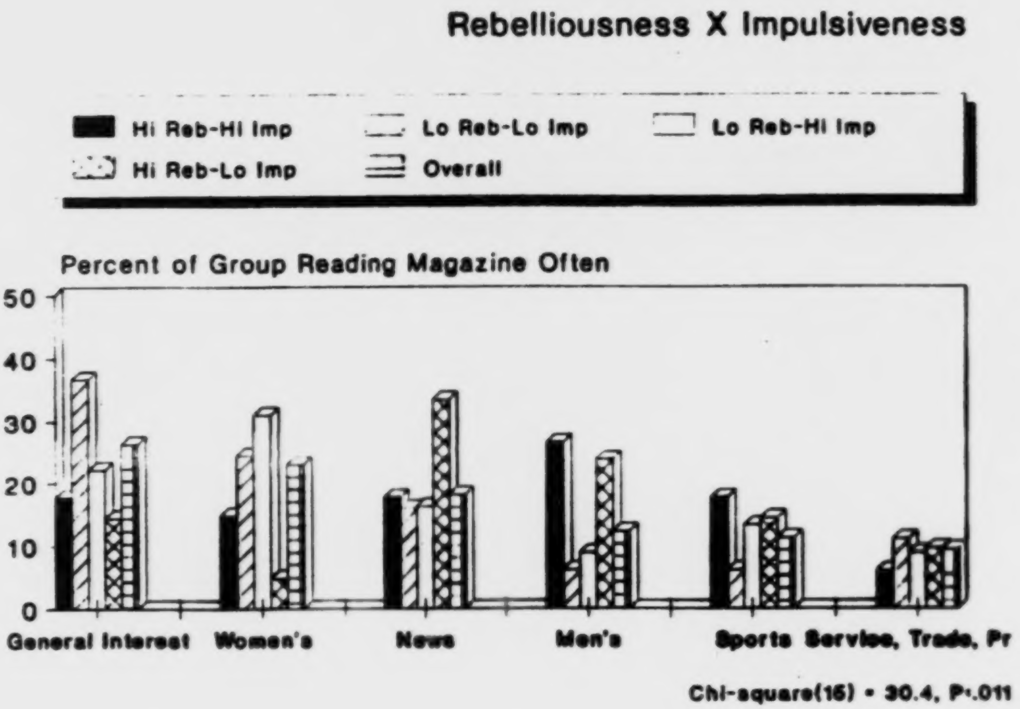


Table 18. Radio Preferences And Uses

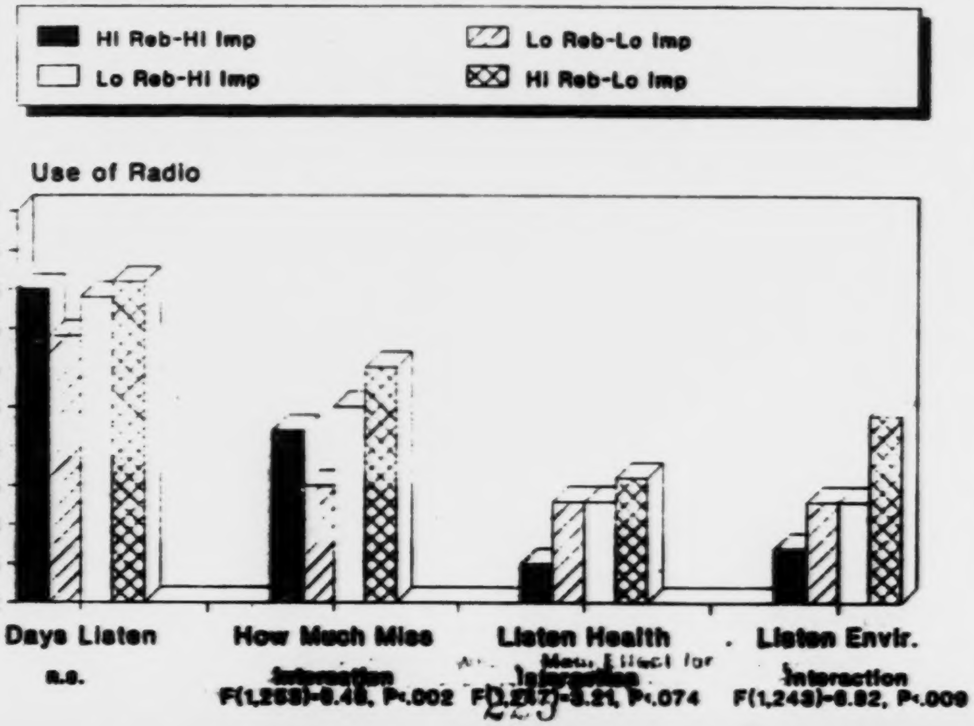
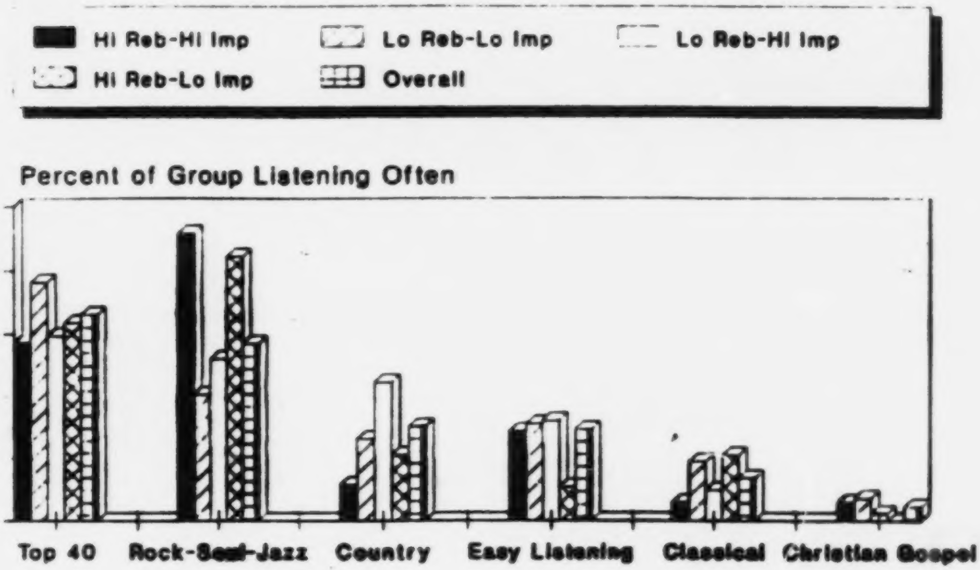


Table 19. Radio Station Listened To Most Often

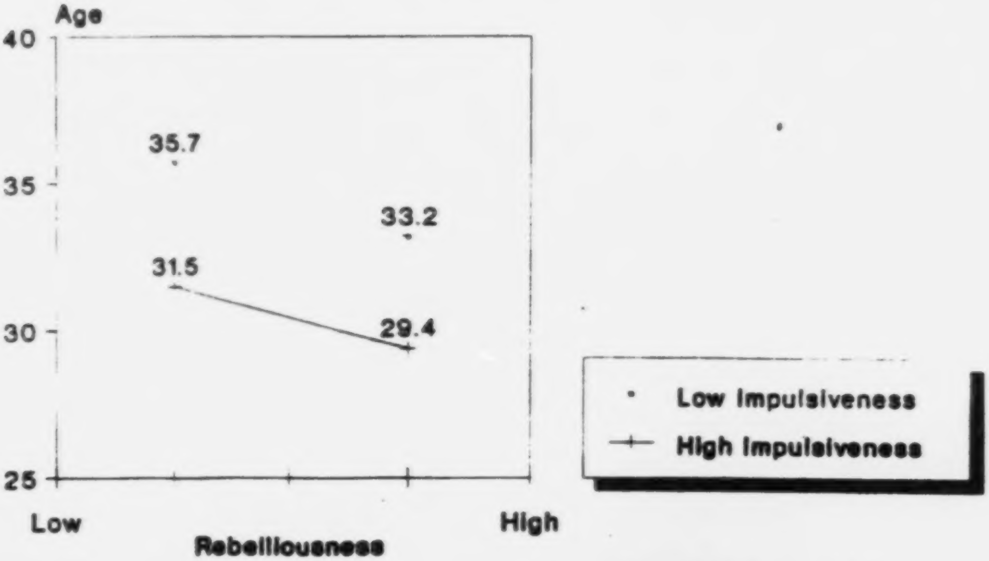
Rebelliousness X Impulsiveness



Chi-square(15) = 18.8, P<.22

Table 20. Age and Risk Taking

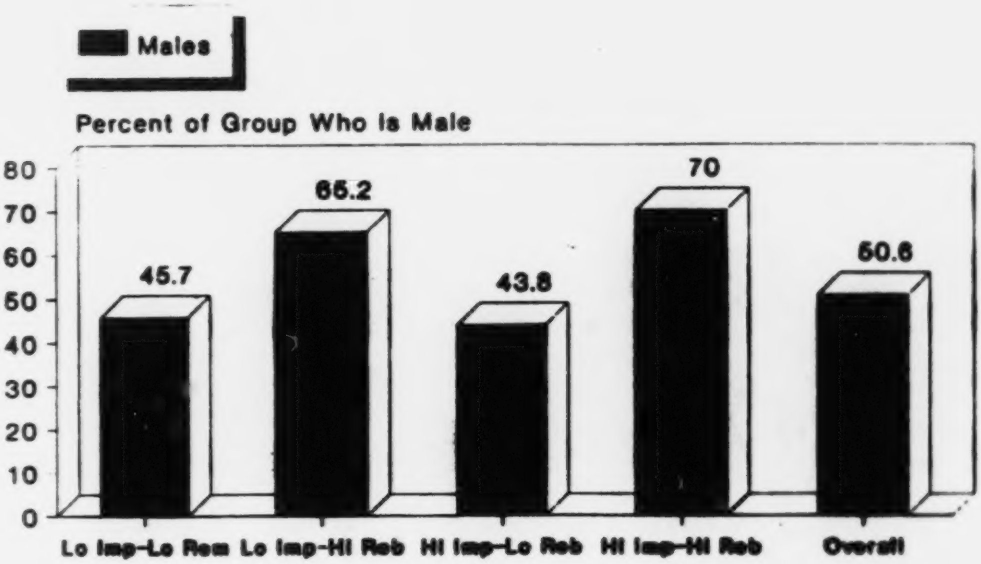
Rebelliousness X Impulsiveness (n.s.)



Where Main Effect for Impulsiveness F(1,293)=7.78, P<.006

Table 21. Gender and Risk Taking

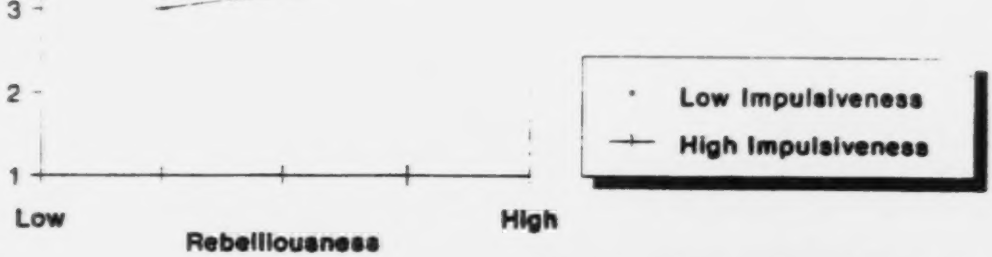
Rebelliousness X Impulsiveness



Chi-square(3) = 10.6, P<.014

Table 22. Amount of Education Completed

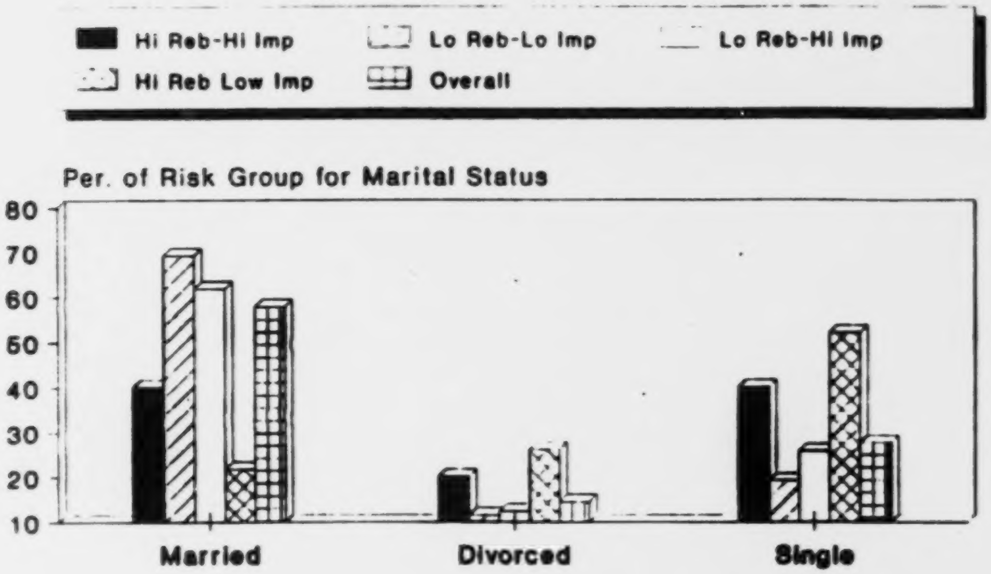
Rebelliousness X Impulsiveness (n.s.)



Main Effect-Imp. F(1,255)=9.36, P<.002
Where: (1=Some ed., 2=High school,
3=Some college, 4=College degree, etc.)

Table 23. Marital Status and Risk Taking

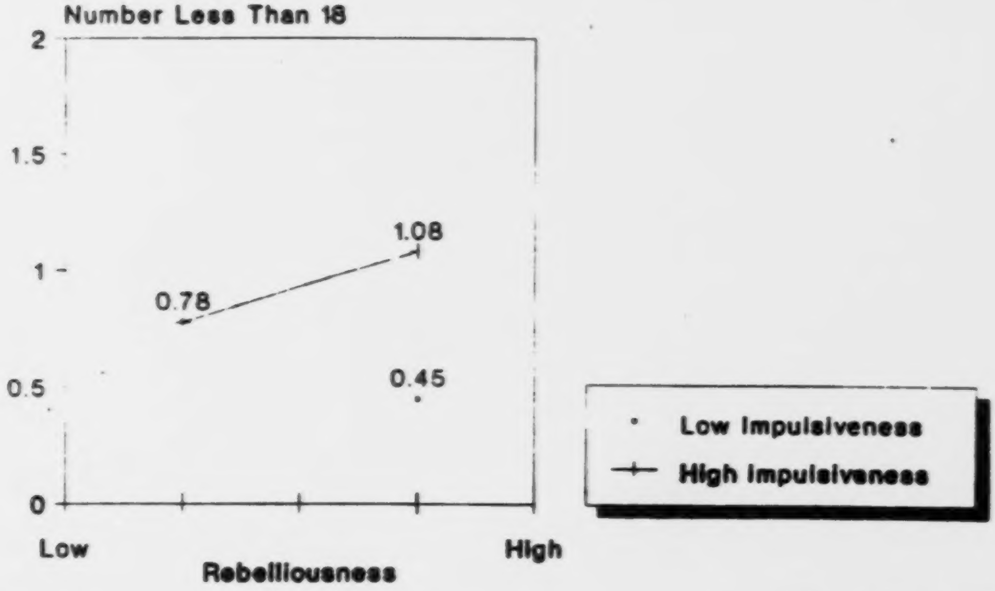
Rebelliousness X Impulsiveness



Chi-square(6) = 23.8, P<.0006

Table 24. Children at Home and Risktaking

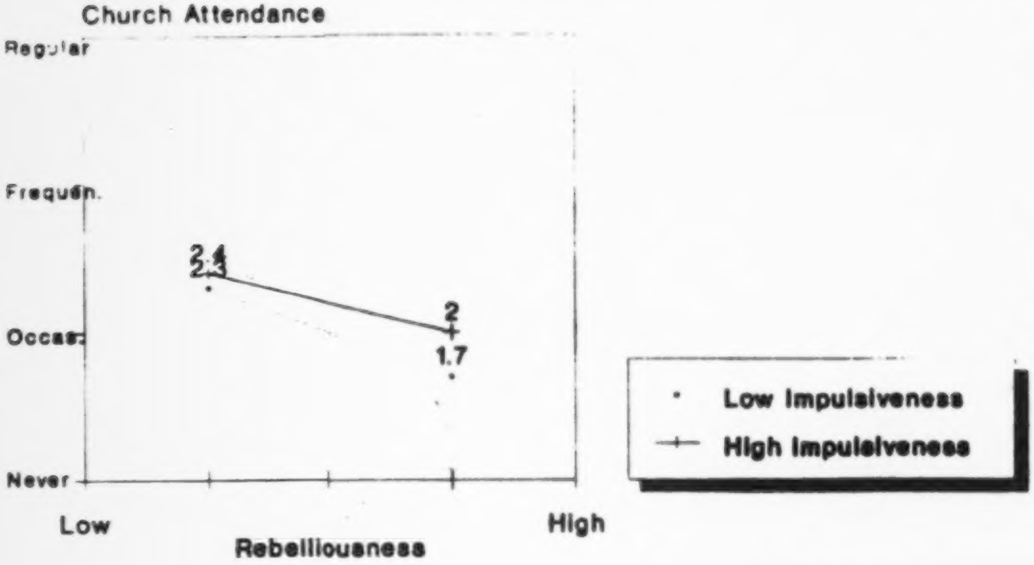
Rebelliousness X Impulsiveness



F(1,228)=3.37, P<.066

Table 25. How Often Attend Church

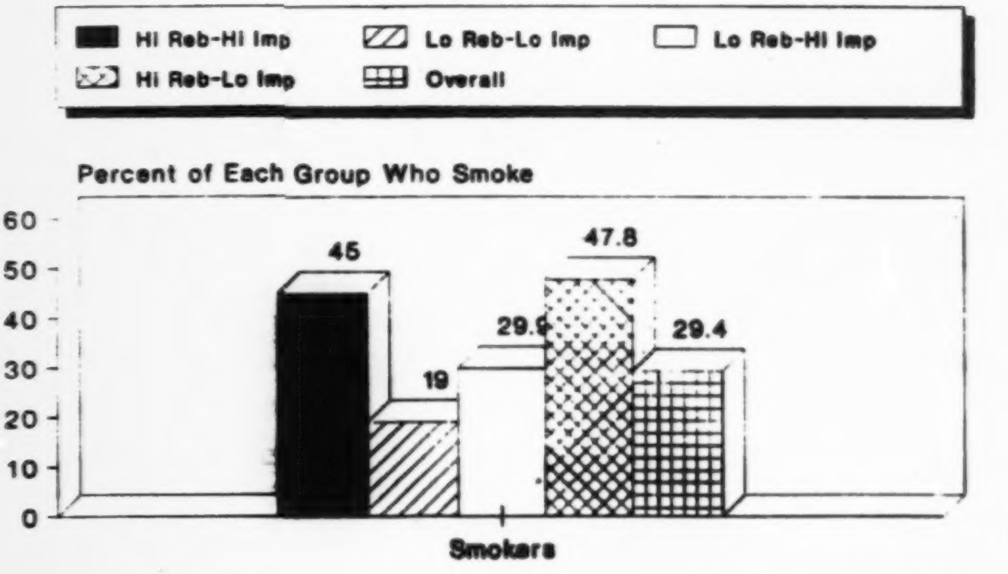
Rebelliousness X Impulsiveness (n.s.)



Main Effect--Rebelliousness
F(1,254) = 16.77, P<.001

Table 26. Currently Smoke Cigarettes

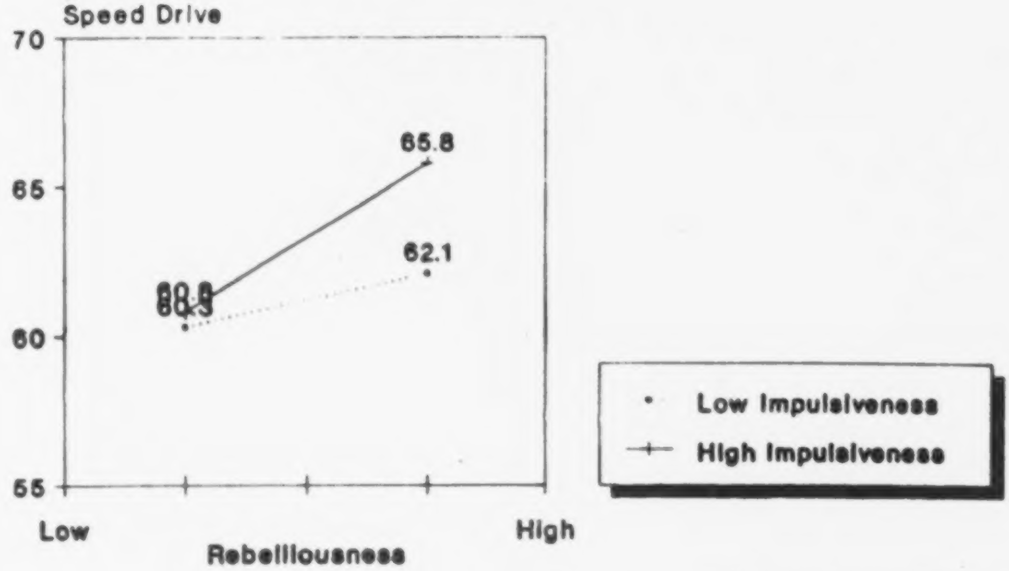
Rebelliousness X Impulsiveness



Chi-square(15) = 13.9, P<.003

Table 27. Speed Usually Drive on Clear 55 MPH Highway

Rebelliousness X Impulsiveness (n.s.)



Main Effect--Rebelliousness
F(1,253) = 16.38, P<.001

Fishing Paradise: Mass Communication, Culture, and Environmental Relationships in the Quetico-Superior Wilderness of Ontario and Minnesota

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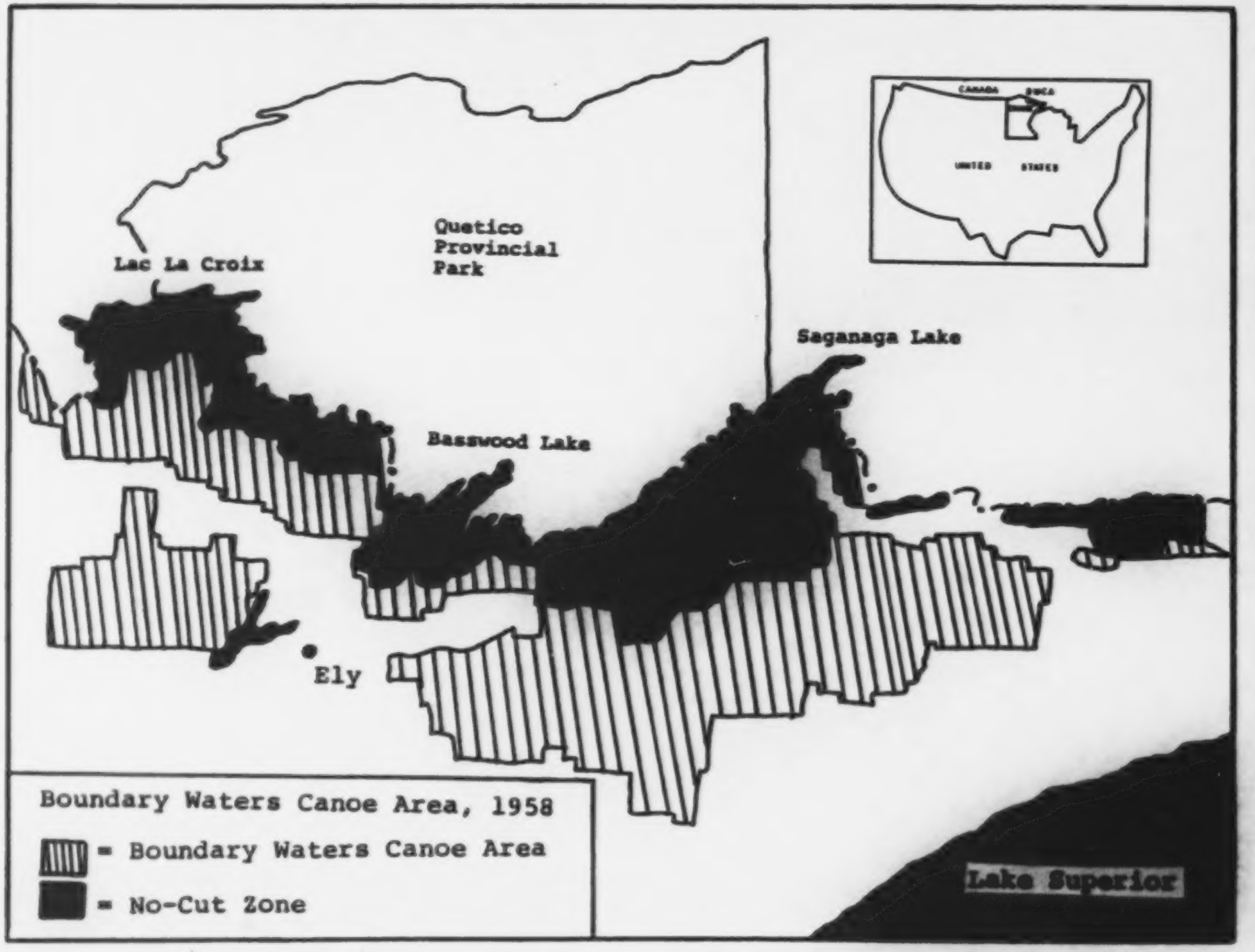
Abstract

This paper uses a historical, case-study approach to show how mass communication, by spreading particular, value-based images of places, helps determine the kinds of people who visit those places, as well as the ways in which they behave when they get there. This, in turn, leads to demonstrable consequences for the physical environments of such places. The author argues that scholars need to begin examining these interrelationships between mass communication and the physical environment.

Fishing Paradise: Mass Communication, Culture, and Environmental Relationships in the Quetico-Superior Wilderness of Ontario and Minnesota

Mass communication scholars have given relatively little attention to environmental communication in recent years, despite growing emphasis in the mass media about such issues as global warming, the ozone layer, tropical deforestation, acid rain, and wilderness preservation. Journalism Quarterly, for example, has published just two full-length research articles with an environmental focus since 1984, and a total of five since 1980.[1] These articles are typical of environmental communication research in examining topics related to news production, issue awareness, and attitudes. While important, such research examines only what is happening in the social system. Systems theory, however, predicts that changes in the social system will affect the ecosystem, and vice versa. Environmental communications research, then, should examine these interrelationships.[2]

This article will attempt to take that next step and show how mass communication, by spreading particular, value-based images of places, helps determine the kinds of people who visit those places, as well as the ways in which they behave when they get there. This, in turn, leads to demonstrable consequences for the physical environments of such places.


Boundary Waters Canoe Area, 1958

▥ = Boundary Waters Canoe Area
■ = No-Cut Zone
Lac La Croix
Quetico
Provincial
Park
Saganaga Lake
Basswood Lake
Ely
Lake Superior
CANADA
BWCA
UNITED STATES

A good example can be found in the history of the Quetico-Superior wilderness of Ontario and northeastern Minnesota. Consisting of Quetico Provincial Park in Ontario and the Boundary Waters Canoe Area in Minnesota, it contains more than three million acres devoted to canoe-based recreation. For seventy years the mass media have implicitly or explicitly promoted particular images of this place, one of the most heavily-used and controversial wilderness areas on the continent. And people have visited the canoe country with differing expectations, based on what they have heard and read.[3]

This article will focus on the Quetico-Superior from the mid-1920s, when significant numbers of tourists were beginning to arrive, through the mid-1940s. It will describe the dominant media image of this wilderness, show how that image was connected to broad cultural trends, and indicate the social and environmental effects of the image.

To understand what happened in the Quetico-Superior, it is necessary to first examine the broader cultural context. During the 1920s, the United States was faced with an economy that no longer was characterized by scarcity, but by abundance. Corporate and political leaders worried that the economy would collapse unless Americans made the change from a production-oriented society, dominated by the self-denying Protestant work ethic, to a society focused on consumption.[4] They used the mass media to barrage Americans with the command to buy, buy, buy. "People may ruin themselves by saving instead of spending," said an economist. A newspaper editorialized that an American's "first importance to his country is no longer that of citizen but that of consumer. Consumption is a new necessity." Material possessions became the measuring stick of success; President Calvin Coolidge went so far as to claim that "wealth is the chief end of man."[5]

It was not difficult to create a consumer culture in an increasingly pluralistic society. The rational, secular world view of science and industry was spreading from the elites to the masses, aided by urbanization and by technological advances in transportation and communication. Barraged by numerous conflicting political, social and religious beliefs, Americans had begun journeying down the slippery slope of relativism; what once were seen as absolute truths were becoming mere matters of personal opinion. Historian T.J. Jackson Lears argues that the "crucial moral change" that allowed the consumer culture to emerge was "a shift from a Protestant ethos of salvation through self-denial toward a therapeutic ethos stressing self-realization in this world -- an ethos characterized by an almost obsessive concern with psychic and physical health defined in sweeping terms."[6]

A central theme underlying the therapeutic ethos was a nostalgic attachment to nature. And of all the outdoor activities that became increasingly popular in the emerging consumer culture, fishing had the most impact on the Quetico-Superior. President Hoover had called it "good for the soul of man," and the leading outdoor magazines praised its therapeutic values. "There are bigger fish in fishing than the fish we catch," editorialized Sports Afield. "They are...health and happiness. Health and happiness yield confidence, enthusiasm, serenity and appreciation....In days like these, when many of us are assailed by doubts...beset by worries... suspicious that the world is tottering...we need to go fishing."[7]

Outdoor Life called the angler "the thirteenth disciple," and, in an editorial describing a typical fisherman, the magazine showed its readers how fishing promoted self-realization:

> ...all day long he waded and whipped the stream, working riffles, drifts, logs, piers and stumps; not catching many fish, but evening found him with soothed nerves and, tho tired, a rested feeling had entered his system.
>
> At peace with nature, the world and men, he drove home possessing the greatest of all to be desired -- peace with himself, and after all there seems only one conclusion that satisfies -- 'Go Fishin.'[8]

The implicitly antimodern sentiment behind the popularity of fishing was readily co-opted by the modern consumer culture. Manufacturers created new products designed to make fishing a more satisfying experience. They made lightweight rods and reels, a dazzling array of colorful lures, and more effective clothing for cold and wet weather.

Of all the new products, however, the most important was the outboard motor. Outboards had begun making their way into general use shortly after the turn of the century, but they were uniformly slow, heavy, and often hard to start. In 1926, however, when Johnson Motor Co. introduced the fast and reliable Big Twin outboard, consumer demand skyrocketed. By 1929 the company was the leading manufacturer of outboard motors, and sold more than thirty-one thousand. Sales declined during the early years of the Great Depression, but returned to the 1929 level in 1937. Two years later the company broke the forty-thousand mark, and in 1949 sold nearly ninety thousand. By that time nearly two million outboard motors were in use in the United States.[9]

Advertisers identified the outboard motor with the therapeutic ethos. They presented the machine as a necessary part of the simple life, the best way to escape from civilization to the freedom of the wilderness: "To those who own outboard motors and boats, thousands of untrammeled highways lie open where there are no white street lines, no red stop lights and no hurry and bustle of straight pavements. Every bay and river invites the water tourist to rest, to explore, or hunt or fish without bother."[10]

The outboard motor was especially popular with fishing enthusiasts. No longer did anglers need to spend most of the day rowing or paddling to and from the best fishing spots, until their arms and backs ached and their hands blistered. Now they could spend the bulk of their time fishing, and could try out new locations that previously had been too far away. The motorboat became, in a sense, a modern version of the covered wagon, opening to everyone wilderness waterways that previously had been accessible only to the hardiest. And one of the places it opened was the Quetico-Superior.

In 1926, just as Johnson Motor Co. was introducing its Big Twin, the U.S. Forest Service struck a compromise between wilderness preservationists and tourist promoters and set aside three roadless areas in the Superior National Forest on the American side of the Quetico-Superior; this protected wilderness eventually was expanded and renamed the Boundary Waters Canoe Area. The compromise allowed the construction of two roads through undeveloped wilderness between and alongside the newly protected roadless areas. Resorts began spreading into the wilderness. By 1936 at least sixteen resorts were operating in the area near Ely, Minn., the major American gateway to the Quetico-Superior. By 1950 the number had mushroomed to sixty-five; thirty-three of these depended upon the two new roads, outboard motors, or both for access.[11]

The Quetico-Superior enjoyed one key advantage over other nearby regions competing for tourism -- lots of free publicity, particularly in the national outdoor magazines. This was crucial to the area, because the other regions often had much more money for promotion. In 1931, for example, Michigan's Upper Peninsula spent $42,000 on publicity, nearly six times the $7,400 spent by the Arrowhead Association of northeastern Minnesota. But the three leading outdoor publications -- Sports Afield, Outdoor Life, and Field and Stream -- published forty-eight non-fiction feature stories about the canoe country during the decade. The coverage in these and other magazines, combined with newspaper articles and local promotional efforts, drew the attention that built the area's tourist trade. At the same time, the coverage firmly established the Quetico-Superior's image as a fishing paradise.[12]

It was a romantic and nostalgic image, based on a fervent desire to believe that the American frontier and traditional values still existed, unaffected by economic and social change. A paradise is a place set apart from the everyday world. Its spiritual connotation implies beauty, purity, vitality. In paradise, living is easy and rewarding. Food is abundant, ready for the taking. Activities performed with little thought in everyday life take on a new luster: the chore of grocery shopping is replaced by the enjoyable sport of fishing; the boredom of mealtime preparation is supplanted by the excitement of campfire cooking. Even sleep, whether under the stars or in a log cabin, assumes a new character.

Many other places in the country boasted of good fishing; one of the most publicized was nearby Lake of the Woods, famous for its muskellunge. But Lake of the Woods lacked one thing that the canoe country had in abundance, a remoteness from civilization that allowed people -- once they had gotten beyond the large cutover region that occupied most of the American side

-- to imagine they were the first ones there. Sigurd Olson, a biology professor at the Ely Junior College who eventually became an acclaimed author and a leader of the national wilderness preservation movement, explained the attraction in a Field and Stream article that described how he and another man spent a day blazing a trail north from Bart Lake to one that had no name: "Those who have never found new bass water cannot understand the feelings that were ours as we pushed our canoe into the sunset that evening. Here we were, all alone -- perhaps the only white men who had ever been on these waters, and surely the only bass fishermen. And to know that here was country entirely primitive was enough to make us more than happy."[13]

These "virgin lakes," as they came to be promoted, provided a sense of adventure, freedom and independence that seemed to be slipping away from modern society. To many, these feelings were more valuable than the solitude and quietness also found in wilderness. And there was no better way to establish a link to the nostalgic past than to harvest nature's bounty. Most of the tourists wanted fish, lots of fish, and the image of "virgin lakes" implied a piscatory abundance of which hard-bitten fishermen dreamed. Advertisers tantalized prospective tourists with big claims: "The waters are alive with salmon, trout, pike, pickerel and bass;" "Thrill to battles to the finish with fighting landlocked salmon, explosive great northern pike, scrappy bass, wonderful eating wall-eyed pike;" "We throw them back under ten pounds."[14]

These claims were backed by the feature stories in the outdoor magazines. Sports Afield published such articles as "Quetico Bass (The Villains)" and "Where Big Ones Lurk;" Outdoor Life features included "The Warriors of Wind Bay" and "Wilderness Walleyes;" Field and Stream ran such pieces as "Lucius the Mighty" and "We Wanted Bass."[15] The authors of these and other features made it clear that the Quetico-Superior was indeed a fishing paradise. As one of them put it: "Nowhere -- not even in Yellowstone -- is there such a game sanctuary....In numerous rapids and sandy shallows pike, walleyes, perch, lake trout, bass and many other game and food fish spawn literally by the millions. It is one of the greatest fresh-water gamefish areas in existence....The unscarred lakes are scenic landscapes of unmatched beauty. In all our great National Parks system there is no scene that will surpass their aesthetic values.[16]

It was the frontier all over again -- even better, because hardship was unnecessary in a paradise -- and there was biological gold in the lakes and rivers of the Quetico-Superior. Those who saw the region as a fishing paradise greatly appreciated the area's rugged beauty, but categorized lakes by the species of fish they contained, and ranked highest those places where the fish were large and plentiful. This came across loud and clear in the outdoor magazines, and perhaps was best expressed in the feature stories written by Emil "Ogima" Anderson.

Nobody in the 1930s wrote as many fishing stories about the Quetico-Superior as did Anderson, a young, curly-haired Ely guide who smoked a Calabash pipe and had a quick sense of humor. He wrote ten features for the Minneapolis-based Sports Afield, which by 1939 was the leading outdoor magazine, with a circulation of 250,000. Each of his articles was about Quetico Park, and Anderson made it clear that fishing was the primary attraction. "There is virgin fishing in Quetico Provincial Park to this day," he wrote in 1933, and took his readers on tour:

> Let's go east along the International Boundary. Here's Carp Lake -- trout and bass, and Emerald [Lake] -- trout....And here's Knife Lake --more trout, and wall-eyes, and Great Northerns -- and bass, too!...
>
> Out of Bayley Bay of Basswood -- there it is -- Burke Lake for trout and wall-eyes, then Sunday Lake....And look at Lake Agnes -- 4, 6, 8 -- gosh, 15 miles of scenic grandeur, trout and wall-eyes....
>
> Now let's go down Basswood River to Crooked Lake. Just look at all those little lakes to the North! This is bass country. Over here is Robinson [Lake], trout, wall-eyes and blase bass. Two Grandpa lunkers in a certain bay swim out to meet every canoe and look the visitors over. Bass Lakes all about, here. A little east lies [Lake] Sarah, trout, wall-eyes and abundant beauty. North of Crooked there is also Argo, an outstanding trout lake.[17]

Basswood Lake gained the most publicity. Not only did it become known as the best gateway to the canoe country and serve as the starting point for the vast majority of canoe trips (in fact, Americans venturing into Quetico Park via Ely had to stop at Basswood to check in at customs), it became widely publicized as a top-notch fishing spot. This was especially true after 1929, when a Chicago tourist caught a world-record, 45 lb.-12 oz. northern pike in Wind Bay. "Ye gods and little fishes! What a pike!" exclaimed Seth Briggs in Field and Stream, as he awarded the angler first prize in the magazine's annual fishing contest. When Sports Afield referred to the pike just four months later, the fish had gained nearly two pounds.[18]

The record-breaker was caught on a lure, rod and line all made by the South Bend Bait Co. of Indiana, which wasted no time in playing up the catch in its advertising. Basswood resorts were quick to follow suit. "Where the world's largest northern pike are caught," exclaimed Peterson's Fishing Camp. "In all the world, no fishing like ours," bragged Wegen's Wilderness Camp. "Come where they are," urged Pinecliff Lodge. "The fishing can't be beat!" claimed Pipestone Falls Lodge. Northern pike from Basswood Lake were Field and Stream prize winners again in 1933 and 1934. The lake's great fishing -- not only for northerns, but for walleyes and, eventually, smallmouth bass -- would lead Outdoor Life magazine in 1964 to call it one of the nation's "25 top fishing holes."[19]

Such publicity was an important factor in determining which parts of the canoe country received the heaviest use. Anderson, who had played a key role in identifying the best fishing lakes to a national audience, wrote in 1936 that heavy publicity given to Quetico Park's Bart Lake had led to such an increase in fishing that "today it is only mediocre." A year later he wrote that Quetico canoe parties were heading straight for the best-known lakes, and ignoring the excellent fishing in lakes and streams along the way. As one of his examples he mentioned Grey Lake, which he said contained an abundance of large-mouth bass, but was usually passed over because canoeists were anxious to reach Kashipiwi, which "has a reputation."[20]

Such concentrated angling was hard on the area; environmental conditions made it relatively easy to over-fish Quetico-Superior lakes. Gouged by glaciers into Precambrian Shield bedrock, the lakes had fewer dissolved salts than did lakes south of the Shield, and were much lower in biological productivity. Few species of fish inhabited the area, and, despite the heavy publicity to the contrary, populations were relatively low. As early as 1924, Superior National Forest Supervisor Calvin Dahlgren noted that the lakes and streams next to Ely were "practically fished out." The ever-increasing numbers of fishing enthusiasts, lured to the area by an image of abundance, were essentially mining the canoe country. Clearly, Fishing Paradise would not be an eternal one without human intervention. Large numbers of fish needed to be raised and released to keep the anglers satisfied.[21]

During the 1930s and 1940s, as the tourist industry began rapidly growing, widespread stocking commenced. All of the major canoe route lakes were regularly stocked. Basswood Lake, for example, was stocked seventeen times with state-reared fish between 1930 and 1945, most often with lake trout and largemouth bass, but also with walleyed pike and, eventually, with smallmouth bass. The walleye stockings, while not as frequent, were the largest, with sometimes more than a million fingerlings released in a day.[22]

Much of the stocking was overseen by the Minnesota Game and Fish Department, which gave fingerlings to all who asked and filled out the necessary forms; local resort owners and chamber of commerce officials released millions of fish in this way. The federal Fish and Wildlife Service also participated, and, until sometime after World War II, the U.S. Forest Service raised and released fish in the canoe country. While records estimating the total annual number of state and federal-raised fish released in Superior National Forest have not been compiled, forest officials estimated the 1936 total to be nearly twenty million.[23]

Besides regularly stocking native species of fish, government agencies and local tourist promoters introduced into the Quetico-Superior one of the most popular non-natives: the smallmouth bass. The program was inspired by Ken Reid, the executive director of the Izaak Walton League, and initiated with the help of Sigurd Olson. Olson brought the first shipments to Basswood and Knife lakes in 1940; soon, the Fish and Wildlife Service, the Forest Service, and the Minnesota Fish and Game Department began participating in the program.[24]

The smallmouth bass soon spread through the border lakes, and competed with the walleyed pike, another species highly favored by anglers. Adult smallmouth and walleye will eat each other's young; warmer-than-average summers during the 1940s and 1950s provided favorable conditions for a smallmouth population boom that apparently gave the bass a competitive advantage. Gillnet records showed increasing concentrations of smallmouth beginning in 1950, and decreasing concentrations of walleye. In the 1960s and 1970s, summer temperatures dropped below normal, and the population trends reversed. The introduction of the smallmouth bass, then, seems to have had the environmental effect of limiting walleye populations when the climate is warmer than average; this effect may become more significant in the future, if predictions of global warming prove correct.[25]

The introduction of the smallmouth bass also -- as intended -- increased the area's reputation as a fishing paradise. By the late 1950s, articles began to highlight the "blue-ribbon smallmouth water" of the Quetico-Superior.[26] A canoe country smallmouth won Field and Stream magazine's national contest in 1965. Outdoor Life listed Basswood and Saganaga lakes among the nation's best for bass fishing. It especially praised Basswood: "This lake holds more lunker smallmouth bass than many lakes now enjoying international fame as bass spots....Here's what one of the top guides at Basswood writes: 'A party of four New York doctors landed 1,682 smallmouth bass in eight days during July 1957, releasing all but 12 kept for frying.'"[27]

The canoe country's image as a fishing paradise depended upon the myth of natural abundance. Maintaining fish populations, or even increasing them, was essential to the image's success. But the myth of abundance was part of a greater paradox. The fishing paradise image was based on a sentimental pastoral dream long dominant in the United States, which praised rural life and the frontier as the source of virtue and happiness, and yet allowed to go unchecked the nation's material progress that was transforming the land and traditional values. Nostalgic for the simple life, but committed to modern amenities, those who believed in the old pastoral dream naively hoped they could have the best of both worlds without sacrifice.[28]

This paradox behind the fishing paradise image was perhaps best evident in the writing of Bob Lincoln. One of the United States' best-known outdoor writers, Lincoln was a leading promoter of the Quetico-Superior during the 1930s, writing eight feature stories for Sports Afield. He wrote sentimental, exuberant prose about the primitive, but advocated the use of modern conveniences. Lincoln called Superior National Forest's wilderness areas "the exclusive haven of the canoeist, the Area Primeval!"[29] Yet he rigged his canoe with an outboard motor for most of his trips through the canoe country, and enthusiastically wrote an elegy for the paddle:

> The outboard motor has eliminated the romance of the spruce blade, but it has likewise laughed at the miles and with its canvas covered charge has gone gallivanting over the waves with a light-hearted put-put that spells conquest of time and distance. Gone are the bark craft of the voyageurs and fur-traders with the time-honored "H.B.C." painted at the bow for all men to see and give heed to. Modern inventiveness has supplied ease-loving man with a means to pleasure and transportation that is unrivalled.[30]

Lincoln detested the "dollar-minded lumberman," and happily (also incorrectly) reported in 1937 that in the Superior National Forest's wilderness areas "no resorts are permitted and aside from the trails and portages from lake to lake there is little evidence of civilization and its devastating effect on the wild domain."[31] Yet his writing about the outboard motor implies a perspective that appreciates the conquest of nature, so long as the objective is catching fish. He wrote about how he "penetrated" the virgin lakes of the Quetico, where he and his companions found fish "that hit our lures with all the viciousness of finny ones that had never witnessed the presence of those glittering frauds on which they so often commit suicide."[32]

To those who saw the Quetico-Superior as a fishing paradise, as did Lincoln, the excitement of catching fish while in a scenic setting was ultimately more important than an authentic experience of wilderness living. They wanted to experience the freedom and vitality of pioneer life, but not the hard work. The simple life that they sought was a modern version, not a pre-industrial one, and was tailor-made for the consumer culture. Fishing Paradise required large and fast outboard motors for the more accessible lakes, small and lightweight ones for the interior. It required resorts with rustic log cabins that had warm beds and well-stocked fireplaces, and with main lodges that provided "good home cooking." It required guides who could take people to the best fishing spots, haul gear over portages, set up comfortable base camps, clean and cook the fish. One guide told a Field and Stream writer of his disdain for the lack of hardiness among the new tourists:

> Some of 'em are reg'lar babes in the woods. They can't do a darn thing an' expect us guides to be a sort of French chef, redcap, bell-boy, outboard motor an' pack mule all combined. It's our fault if it rains or if the fish don't bite. You would think we was to blame for the mosquitoes an' black flies, for the rocks bein' hard an' sharp; and we're expected to shrink the portage trails up to a couple of jumps an' then pave that. We have to do everything but tuck 'em into bed an' kiss 'em good night.[33]

Resort owners were careful to advertise their "electrically lighted" cabins, their showers, saunas, linen, dining rooms and sand beaches. They pointed out the good roads leading to their lodges. But they did not neglect the key attraction: the surrounding frontier conditions that linked people to simpler times and guaranteed a big catch of fish. "New country has been made accessible for the first time and we are among the pioneers," said a brochure for Canadian Border Lodge, 20 miles northeast of Ely on Moose Lake. "Since the Fernberg Road, tapping the boundary lake wilderness, was only recently completed, the fishing done thus far has made no impression on the vast supply in the unlimited waters available. This region is one vast network of open water teeming with fighting fish....Many of our parties last year caught the limit of wall-eyed pike in an hour."[34]

The desirability of locating at the edge of the wilderness directed the resort boom of the 1930s and 1940s. Because much of the American side of the canoe country had been logged over early in the century and was only beginning to grow back, prospective resort owners often searched for stands of virgin pine in which to locate. Barring that, they often planted stands of red pine around their resorts. Many brought in such non-native species of plants as tiger lilies and lilies of the valley. A number of entrepreneurs, however, tried to gain an advantage by advertising the proximity of their resorts to the largely pristine Canadian side of the wilderness. "Farthest north lodge on Moose Lake," claimed the Winton Trading Lodge. "Close to Canada," advertised Pipestone Falls Lodge. "Near Canadian Border," said the ad for Evergreen Lodge. "Within a stone's throw of the Canadian Border," promised Johnson Bros. Fishing Camp.[35]

These last three resorts were located on Basswood Lake. Much of its American shore was still an eyesore at the end of the 1920s, although a thick second growth of aspen and fir was well on its way. But glorious virgin stands of red and white pine lined the northern side of the lake, standing sentinel over the Canadian wilderness. They were there because the international boundary had set them off-limits to American loggers, and because lack of access had so far kept Canadian loggers away. They served as a major attraction to those who sought the wilderness, including those who came to catch Basswood's increasingly famous northern pike. Despite its lack of road access, Basswood became the most popular resort lake of the canoe country. In 1928 there were two resorts; fourteen years later there were fourteen more. In 1944 the Ely Commercial Club boasted, "The total guest capacity of all the resorts is well over a thousand people." By then there were houseboats on the lake, and daily mail service. A dozen private homes also occupied Basswood's shores, several of them the year-round homes of local Ojibwa, the rest summer cottages.[36]

Born of a vague nostalgia for the contentment associated with a younger, wilder America, and bred to a strong faith in modern technology, Fishing Paradise had emerged from the minds of men and become incarnate in the Quetico-Superior. Basswood Lake, its centerpiece, was the meeting ground of the past and the present, which were nicely separated by the international boundary. But its political and physical dominance of the canoe country did not last long. After World War II two other broad images of the Quetico-Superior -- commonly expressed in the mass media since the 1920s but far less frequently than the fishing paradise image -- became politically powerful. One portrayed the wilderness as a sanctuary for escaping from civilization; supporters of this image wanted to experience peace and quiet more than abundant fishing or modern comforts. The other image portrayed the area as a sacred place. Its supporters sought more than escape and relaxation; they wanted primarily to find a sense of oneness with nature that gave them spiritual sustenance.[37]

Supporters of these three broad images have fought almost continually over the Quetico-Superior's management since World War II, and those who have supported the fishing paradise image have lost nearly every battle. The U.S. government has bought dozens of resorts and private cabins -- in some cases after condemnation -- and has greatly restricted the use of outboard motors. Quetico Provincial Park received full wilderness protection in 1972, and the Boundary Waters Canoe Area became a designated wilderness area under U.S. law in 1978.

Even without the political battles, however, the Quetico-Superior's reputation as Fishing Paradise probably would not have lasted. In the 1950s, the three leading outdoor magazines published ten features about the area, just 20 percent of their 1930s' coverage. The fishing frontier had moved to northern Ontario; floatplanes made it accessible to all, just as outboard motors had earlier opened the remote lakes of the Quetico-Superior. Northern Ontario contained the "virgin lakes" for a new generation of wealthy anglers, and was covered in dozens of features by the top outdoor magazines. This was especially true after 1960, as Canada's new transcontinental highway opened vast areas of wilderness north of Lake Superior.[38]

Nevertheless, the fishing paradise image, long popularized in the mass media, has left its imprint on the Quetico-Superior environment. Thick, even-aged clusters of red pine, nowadays often presumed by tourists to be virgin stands, identify former resort sites in the Boundary Waters Canoe Area; bright, non-native species of flowers sprout in places along rocky shorelines; and, on summer evenings, smallmouth bass jump in the shallows.

Notes

1. They were: Michael R. Greenberg, David B. Sachsman, Peter M. Sandman and Kandice L. Salomone, "Risk, Drama and Geography in Coverage of Environmental Risk by Network TV," 66 (Summer 1989): 267-276; John C. Pierce, Lynette Lee-Sammons and Nicholas P. Lovrich, Jr., "U.S. and Japanese Source Reliance for Environmental Information," 65 (Winter 1988): 902-908; Lea J. Lundburg, "Comprehensiveness of Coverage of Tropical Rain Deforestation," 61 (Summer 1984): 378-382; A. Clay Schoenfeld, "The Environmental Movement as Reflected in the American Magazine," 60 (Autumn 1983): 470-475; and Mitchell Stephens and Nadyne G. Edison, "News Media Coverage of Issues During the Accident at Three-Mile Island," 59 (Summer 1982): 199-204. *Journalism Quarterly* also published three "Research-in Brief" pieces during this period.

2. For an analysis of systems theory and its application in environmental communications research, see David James Backes, "The Communication-Mediated Roles of Perceptual, Political, and Environmental Boundaries on Management of the Quetico-Superior Wilderness of Ontario and Minnesota, 1920-1965" (Ph.D. dissertation, University of Wisconsin-Madison, 1988).

3. The following sources all provide more detailed analysis of Quetico-Superior history: For its political history, see Searle, *Saving Quetico-Superior* (St. Paul: Minnesota Historical Society Press, 1977), which examines the time period from 1920 to 1960; James N. Gladden, *The Boundary Waters Canoe Area: Wilderness Values and Motorized Recreation* (Ames: Iowa State University Press, 1989), which focuses on conflicts over outboard motors and snowmobiles in the 1960s and 1970s; Donald N. Baldwin, *The Quiet Revolution: Grass Roots of Today's Wilderness Preservation Movement* (Boulder, Colo.: Pruett Publishing Co., 1972), which examines conflicts over the area's use during the 1920s, focusing on the role played by conservationist Arthur Carhart; David James Backes, "The Air Ban War: Sigurd F. Olson and the Fight to Ban Airplanes From the Roadless Area of Minnesota's Superior National Forest" (M.S. thesis, University of Wisconsin-Madison, 1983), which focuses on a conflict that took place just after World War II; and George Michael Warecki, "The Quetico-Superior Council and the Battle for Wilderness in Quetico Provincial Park, 1909-1960" (M.A. thesis, University of Western Ontario, 1983), the only work to focus on the Canadian side of the story. For more details on the Quetico-Superior's environmental history, see Clifford Ahlgren and Isabel Ahlgren, *Lob Trees in the Wilderness* (Minneapolis: University of Minnesota Press, 1984). For a work that places the Quetico-Superior's political and environmental history into the context of cultural history, see Backes, "The

Communication-Mediated Roles."

4. Merle Curti, The Growth of American Thought, 3rd ed. (New Brunswick, N.J.: Transaction Books, 1982), p. 678; David E. Shi, The Simple Life: Plain Living and High Thinking in American Culture (New York: Oxford University Press, 1985), pp. 217-219; T.J. Jackson Lears, "From Salvation to Self-Realization: Advertising and the Therapeutic Roots of the Consumer Culture, 1880-1930," in Richard Wrightman Fox and T.J. Jackson Lears, ed., The Culture of Consumption: Critical Essays in American History, 1880-1980 (New York: Pantheon Books, 1983), pp. 3-4.

5. The quotes are from Shi, Simple Life, pp. 217, 219. See also Foster Rhea Dulles, America Learns to Play: A History of Popular Recreation, 1607-1940 (New York: D. Appleton-Century Co., 1940), pp. 366-367.

6. Lears, "From Salvation to Self-Realization," p. 4.

7. Hoover quoted in Shi, Simple Life, p. 222; Robert C. Mueller, "Let's Go Fishing in 1932!" Sports Afield, April 1932, p. 9.

8. E.G. Stoughton, "The Thirteenth Disciple," Outdoor Life, July 1926, p. 32.

9. Jim Webb and John Van Vleet, "The Johnson Story," The Antique Outboarder, January 1979, pp. 3-27; W.J. Webb, "The Fifty Greatest Years of Outboarding," The Antique Outboarder, January 1977, pp. 14-16; William Voigt, Jr., "Aquatic Hotrodders and Shrinking Shorelines," Outdoor America, September 1958, p. 6.

10. Captain Jack Sparr, "Outboard Motors and Watercraft," Outdoor America, October 1930, p. 61.

11. For more on the roads issue, see R. Newell Searle, Saving Quetico-Superior, pp. 17-33; and Backes, "The Communication-Mediated Roles," pp. 148-156. The numbers of outfitters and resorts operating in the Ely area (as well as their names and locations) can be found in annual Ely Chamber of Commerce tourist guides kept at the Chamber's office in Ely, Minn.

12. Minnesota Arrowhead Association, Annual Report, December 31, 1931, p. 6, available at Minnesota Historical Society, St. Paul, Minn. (Minnesota Historical Society hereafter abbreviated MHS.)

13. Sig Olson, "Let's Go Exploring," Field and Stream, June 1937, p. 44.

14. Burntside Lodge brochure (n.p., ca 1926), in St. Louis County pamphlets files, MHS; Northern Lakes Guides advertisement, Sports Afield, July 1932, p. 5; Wegen's

Wilderness Camp advertisement, Sports Afield, October 1930, p. 4.

15. Emil "Ogima" Anderson," Quetico Bass (The Villains)," Sports Afield, June 1935, p. 16; Bert Claflin, "Where Big Ones Lurk," Sports Afield, November 1939, p. 18; Arthur Hawthorne Carhart, "The Warriors of Wind Bay," Outdoor Life, April 1932, p. 13; Arthur Hawthorne Carhart, "Wilderness Walleyes," Outdoor Life, June 1932, p. 12; Paul Gartner, "Lucius the Mighty," Field and Stream, August 1933, p. 18; Thomas E. Powers, "We Wanted Bass," Field and Stream, December 1930, p. 34.

16. Arthur A. Carhart, "The Great God Smash!" Field and Stream, February 1933, p. 11.

17. Emil "Ogima" Anderson, "Off the Trail in Quetico," Sports Afield, August 1933, pp. 20, 24.

18. Seth Briggs, "Tales of Record Fish," Field and Stream, June 1930, p. 43; Beebee, "What's Doing Up North," Sports Afield, October 1930, p. 79.

19. South Bend Bait Co. ad, Field and Stream, June 1930, pp. 56-57; Peterson's Fishing Camp ad, Sports Afield, March 1931, p. 5; Wegen's Wilderness Camp ad, Sports Afield, July 1931, p. 10; Pinecliff Lodge ad, Sports Afield, May 1937, p. 16; Pipestone Falls Lodge ad, Sports Afield, June 1935, p. 6; Seth Briggs, "Winners in 1933 Prize Fishing Contest," Field and Stream, march 1934, p. 54; Seth Briggs, "Winners in the 1934 Prize Fishing Contest," Field and Stream, March 1935, p. 57; Wynn Davis, "25 Top Fishing Holes," Outdoor Life, May 1964, p. 34.

20. Emil Anderson, "Quest for Bass in Quetico," Sports Afield, April 1936, p. 68; Emil "Ogima" Anderson, "On the Trail in Quetico," Sports Afield, April 1937, p. 70 (emphasis his).

21. Calvin A. Dahlgren, "Fish and Game in the Superior," Parks and Recreation, July-August 1924, p.633. On biological productivity of the area's lakes, see Fritz H. Johnson and John G. Hale, "Interrelations Between Walleye (Stizostedion vitreum vitreum) and Smallmouth Bass (Micropterus dolomieui) in Four Northeastern Minnesota Lakes, 1948-69," Journal of the Fisheries Research Board of Canada 34 (1977): pp. 1626-1627.

22. Basswood Lake stocking records, Lake County, Box 2, Minnesota Conservation Department Game and Fish Division Records, Minnesota State Archives, Minnesota Historical Society Research Center, St. Paul, Minn. Often times the application would simply list "pike" as being released, not specifying whether it was northern or walleye. I am assuming that these were walleye, for several reasons. First, walleye were a favorite among fishermen, considered by many to be the best-tasting freshwater species. Second, northern pike had a bad reputation well into the 1930s,

seen not only as a poor substitute for the similar-appearing but larger muskellunge, but as a vicious predator of such valuable species as the walleye. Fishermen who landed a northern often tossed it onto the shore for ravens to pick at, or took it home to grind into fertilizer for their gardens. See, for example, O.W. Smith, "Wolves of the Northern Lakes," Outdoor Life, August 1931, p. 16; and Mel Ellis, "Who Says Nuts to Northerns?" Field and Stream, July 1958, p. 56.

Northerns also were abundant, indicating little need for stocking. In fact, it was this abundance, combined with the attention that outdoor magazines began giving to large catches such as the ones from Basswood Lake, that eventually gave it a favorable reputation as a poor man's musky, exhibiting the caginess and fight of its much less common cousin. Its reputation began improving as outdoor magazines began paying more attention to the large catches, such as the ones from Basswood Lake.

A final indication that the generic label "pike" on fish stocking applications referred to walleye is that occasionally the label "pike-perch" was used; the walleye is a member of the perch family.

23. U.S. Forest Service, Classification, R-9, Superior Roadless Area, November 15, 1937, p. 12, in Plans of Management BWCA 1926-1939, microfilm roll 5, Superior National Forest Records, MHS.

24. A handful of letters on the subject are contained in the Sigurd F. Olson Papers, Minnesota Historical Society Research Center. All the letters are located in the Quetico-Superior files. They are: Olson to Reid, September 28, 1989; C.F. Culler to Olson, June 15, 1942; Reid to Olson, December 7, 1943; Culler to Olson, October 11, 1944; Olson to Culler, October 16, 1944; T.H. Copeland to Olson, October 20, 1944; and Reid to Olson, November 8, 1944. The correspondence indicates that Olson's first stocking was in 1940; however, state records for Basswood Lake show no listings for smallmouth bass until 1941. See the Basswood Lake stocking records, Lake County, Box 2, Minnesota Conservation Department Game and Fish Division Records. See also "Smallmouth Bass in the Border Lakes," Outdoor America, October-November 1943, p. 14.

25. Fritz H. Johnson and John G. Hale, "Interrelations Between Walleye (Stizostedion vitreum vitreum) and Smallmouth Bass (Micropterus dolomieui) in Four Northeastern Minnesota Lakes, 1948-69," Journal of the Fisheries Research Board of Canada 34 (1977) 10:1632; Peter D. Inskip and John J. Magnuson, "Changes in Fish Populations Over an 80-Year Period: Big Pine Lake, Wisconsin," Transactions of the American Fisheries Society 112 (1983): 378-389. See also Big Lake Gillnet records, Big 69-190 file, Minnesota Department of Natural Resources, Winton, Minn. office.

26. Wynn Davis, "Best Fishing in the Midwest," Outdoor Life, April 1961, p. 99. See also Wynn Davis, "100 Best Bass Lakes," Outdoor Life, July 1958, p. 33; Hank Bradshaw, "Smallmouth Boom," Outdoor Life, July 1962, p. 28; Hank Bradshaw, "Wilderness Smallmouths," Sports Afield, September 1963, p. 34; and Bob Cary, "Blizzard Bass," Outdoor Life, April 1964, p. 60.

27. Wynn Davis, "100 Best Bass Lakes," Outdoor Life, July 1958, pp. 35, 75 (quote p. 75). See also "Ely Bass 1st in National Fish Contest," Ely Miner, March 3, 1966. The bass, caught in Newton Lake (next to Basswood), weighed 5 pounds, 9 ounces.

28. For an excellent treatise on this theme, see Leo Marx, The Machine in the Garden: Technology and the Pastoral Ideal in America (New York: Oxford University Press, 1964).

29. Robert Page Lincoln, "Fishing in the Last Wilderness," Sports Afield, April 1936, p. 16.

30. Robert Page Lincoln, "Fishermen Three," Sports Afield, April 1931, p. 51. "H.B.C." stands for Hudson's Bay Company.

31. Robert Page Lincoln, "From the Diary of an Angler," Sports Afield, October 1930, p. 25; Robert Page Lincoln, "Land-Locked Lake Trout," Sports Afield, April 1937, p. 82.

32. Robert Page Lincoln, "Fishing in the Last Wilderness," Sports Afield, April 1936, p. 15.

33. Quoted in O.R. Tripp, "Tourists and Tall Timber," Field and Stream, July 1931, p. 36.

34. Canadian Border Lodge brochure (n.p., ca. 1930), in St. Louis Co. pamphlets files, MHS.

35. Winton Trading Lodge ad, in Minnesota Arrowhead Association, Minnesota Arrowhead Country: The Arrowhead Resort Directory (Duluth: Minnesota Arrowhead Association, 1933), p. 7; Pipestone Falls Lodge ad in Sports Afield, May 1937, p. 16; Evergreen Lodge ad in Minnesota Arrowhead Association, Minnesota Arrowhead Association Hotel and Resort Directory (Duluth: Minnesota Arrowhead Association, 1944), p. 21; Johnson Bros. Fishing Camp ad in Minnesota Arrowhead Association, The Famous Minnesota Arrowhead Country Hotel and Resort Directory (Duluth: Minnesota Arrowhead Association, 1942), p. 21. For an in-depth examination of tree-planting and the introduction of non-native species to the area, see Clifford Ahlgren and Isabel Ahlgren, Lob Trees in the Wilderness, pp. 21-36.

36. Ely Commercial Club, Rest and Relaxation at Ely, Minnesota: Arrowhead Country (n.p., 1944), in St. Louis County pamphlets file, MHS; [Bill] Barker, memo to Supervisor Hamel, March 15,

1928, in Carhart, Arthur H., 1922 Report and Photos, Superior National Forest Records microfilm roll 3, MHS Research Center; R.U. Harmon to Chief, June 17, 1942, 2320 Wilderness and Primitive Areas files, Proposed Road Fernberg to Basswood Lake folder, Superior National Forest Records, Duluth, Minn.

37. For the full story of the development of these images, and their roles in the Quetico-Superior's cultural/environmental history from 1920 through 1965, see Backes, "The Communication-Mediated Roles."

38. See, for example, Mel Ellis, "Fly In and Fish," Field and Stream, July 1957, p. 22; Mel Ellis, "The Road Comes to White River," Field and Stream, May 1959, p. 86; Mel Ellis, "I Opened the Hinterland," Field and Stream, May 1960, p. 60; Erwin A. Bauer, "New Road -- New Sport," Outdoor Life, November 1960, p. 40; Woodie Jarvis, "We Fished Forbidden Lands," Outdoor Life, May 1961, p. 33; Charles Elliott, "Go North for Northers," Outdoor Life, June 1961, p. 68; Alain Wood Prince, "The Fishing Was Wild," Outdoor life, June 1963, p. 45.

COMMUNICATING RISKS OF OIL SPILLS TO THE PUBLIC

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ABSTRACT

Media coverage of oil spills in the United States has not been proportionate to the amounts of oil leaked. Among the various oil spills, the Santa Barbara and Exxon Valdez accidents, which were not among the most serious spills, received the most intense media attention. The most serious incident -- the IxToc I accident close to the Texas coast -- received relatively moderate notice. The Empress oil spill in the Caribbean -- the second largest oil spill in the US waters -- received scarce attention from the media. The present study has shown that as media coverage of spill risks increase, public opposition to oil exploration also increases, and policy makers' concerns are heightened.

BACKGROUND:

In the early 1970s, it was predicted often that the public would remain supportive of environmental protection for only a few years. As the public's attention shifts from one issue to another, environmentalism will be forgotten and eventually perish. (Downs, 1972) In contrast to this pessimistic belief, environmental issues have remained on the public agenda, and are experiencing unprecedented momentum as we move into the 1990s. (The Harris Survey, 1986; Mitchell, 1984; The New York Times, October 4, 1981) A clean and safe environment already has been accepted as a public policy priority. (The Conservation Foundation, 1987) The public is even willing to support more restrictive environmental laws at the cost of economic prosperity. A 1982 Roper poll revealed that almost 46 percent of the public would choose to stand "on the side of protecting the environment" rather than ensure adequate energy supplies. (Schneider, 1983)

Furthermore, escalating concern for protecting the endangered Planet Earth has been put into actual practice. The Council on Environmental Quality's 1980 survey of public opinion on environmental issues suggested that as much as seven percent of the U.S. population may be involved in some kind of environmental organization. (Council on Environmental Quality, 1980)

However, the environmental hazards that the public attends to are not necessarily the ones that need to be remedied most. Sometimes they are merely reflections of selective news attention. For instance, past research has shown that environmental programs are stronger in states where environmental risks are reported by the news media more frequently than in states where environmental hazards are not covered as much. (Duerksen, 1983) In addition, both the public and media focus more on sudden and spectacular risks than on chronic, ongoing threats. (Greenberg, et al. 1989; Nelkin, 1987; Nimmo and Combs, 1985; Sandman, 1988; Sharlin, 1986; Ruckelshaus, 1986; Wilkins, 1987)

When environmental risks occur, media serve as the primary vehicle of information through which people receive news and interpretations of events. (Murch, 1971; Nelkin, 1988) Media coverage of environmental issues influences the public's perception of the events (Nelkin, 1988), and ultimately changes or generates pertinent public policy. Love Canal, Times Beach, and Three Mile Island are examples of so-called "media events" in environmental controversies.

People's interest in and attention to current issues do not last. Old issues are replaced by new ones of greater current appeal. (Solesbury, 1976) In order to appeal to the public, news professionals tend to sensationalize events, to keep public's attention and consequently to maximize profits. (Comstock, 1980) This approach leads journalists to pay more attention to polarizing and alarming information, in order to capture the public's constantly changing "issue-attention cycle." (Sandman, 1987; Downs, 1972) As a result, one of the prime determinants of news reporting of environmental risks is not the scientific degree of damage, but rather the amount of controversy involved in the situation. (Levine, 1982; Mazur, 1981; Slovic, 1987)

WHY THE STUDY OF OIL SPILLS?

Criticism of media emphasis on the visual and the dramatic in coverage of environmental risks and technological failures is expressed in a number of studies. Nuclear power plant protests (Mazur, 1988), low-level radioactive nuclear waste (Mazur, 1984), radon (Sandman, 1988), asbestos (Greenberg, et al., 1989), and earthquakes (Walters, et al., 1989) are some of the examples of the imbalanced media coverage of environmental issues. However, these studies failed to look at the environmental hazards created by one technology that is indispensable to our daily lives -- oil exploration.

The incidents of oil spill exhibit controversial characteristics: human negligence, conflicts between environmentalists and the oil industry, the polarizing consequences of technological development, governmental conflicts of interest due to big profits from leasing drilling rights to oil companies, and the need for a clean environment balanced against the public's love affair with cars. Such controversies cater to sensationalism characteristic of most news reporting, and they create ample opportunities to capture media attention.

This study is different from other studies of the relationship between media and environmental hazards and technological failures in that it does not examine one single environmental risk event. Instead, this study examines several events, hoping to identify accidents that have become known to the public, and to discern some of the reasons why. This paper also will examine whether consistent criteria are applied in placing certain events on the media agenda or whether external sources have more influence over the fluctuations in media attention to oil pollution incidents.

There have been case studies of the effects of oil spills upon public opinion, of government's handling of such situations, and of policy change. For instance, Sachsman (1976) and Essertier (1983) both concluded that the 1969 Santa Barbara Channel-Union Oil spill not only greatly improved U.S. offshore drilling technology but also made ecology a nationwide concern. But no analysis has identified an overall, general news trend involving various oil pollution catastrophes. No examination of possible interactions among media coverage, public perception, and the political agenda in the case of oil spills has been made. This paper attempts to highlight some of these relationships.

Although numerous investigations have suggested that it is the acute and the sudden environmental events that receive the most media attention, not all such events get equal news treatment. For example, compared to other oil spills in the U.S. the Santa Barbara incident was very minor.[1] But there were more studies about its impacts than about any other oil pollution incident. (EPA, 1971; Molotch & Lester, 1975; Nash, 1972; Steinhart, 1972) Because of the extensive media coverage, after the

Santa Barbara oil spill, there was not only a substantial reduction in federal oil leases but also a great improvement in U.S. offshore drilling technology.

There were other incidents in which more oil was spilled, but we don't seem to remember them. Why did Santa Barbara attract so much attention and cause tangible changes, while other more severe incidents did not? What are the reasons for the news salience of various oil spills? What are the possible factors that influence governmental or public actions to stop the pollution problems?

In addition, the following questions and issues will guide this study.

(1) Do news stories of individual oil spills increase and decrease according to the amount of seepage? Mazur's (1984, 1988) tests on news reports of technological failures showed no correlation between news publicity and actual damage. Mazur also suggested that the quantity of news coverage of a risk event has more influence on public perceptions than the actual content of the coverage. Though his studies may not be scientifically valid because of the preliminary measurements utilized, Mazur's results distinguished a general fluctuation in news reports of risks. By counting news stories in a newspaper, the current study attempts to ascertain whether eminent media attention affects policy makers' decisions about oil spills.

(2) How much does the human interest angle affect reports of oil spill crises? In part, environmental risks capture media

attention because of divided goals and opinions among action groups. The proponents, such as industry or government, and the opponents, such as environmentalists and the affected public, counterattack each other's advocacy. (Mazur, 1981; Sandman, 1988) Such dramatic conflicts produce disputes and controversies, which in turn amplify the newsworthiness of the environmental risks themselves. Moreover, the involved parties' access to media may also contribute to the salience of the issue. For instance, Lois Gibbs' holding of two hostages from the Environmental Protection Agency in the Love Canal controversy was a successful "manipulation" of media attention. Immediately after news reports of this kidnapping, the affected homeowners' houses were purchased by the government.

Hence, in the context of "human elements," two related research questions are examined. The first asks whether as disputes between proponents and opponents intensify, more media coverage follows. The second question is a corollary of the first: Do increased reports of the controversy bring forth more opposition to the technology? This question is based on Peter Sandman, et al.'s (1986) survey that found that announcements of hazard receive considerably more news coverage than announcements of safety. Consequently, as journalistic attention to controversy increases, public opposition to technology also increases.

In sum, four issues and questions will be addressed in this paper: (1) Does the quantity of news coverage fluctuate as a function of the volume of specific oil spills? (2) What are the causes of peaks and valleys in news coverage of oil spills? (3a) As disputes increase, does media coverage of crises multiply? (3b) Do increasing reports of oil spills generate more public opposition to oil exploration, and possibly generate policy changes?

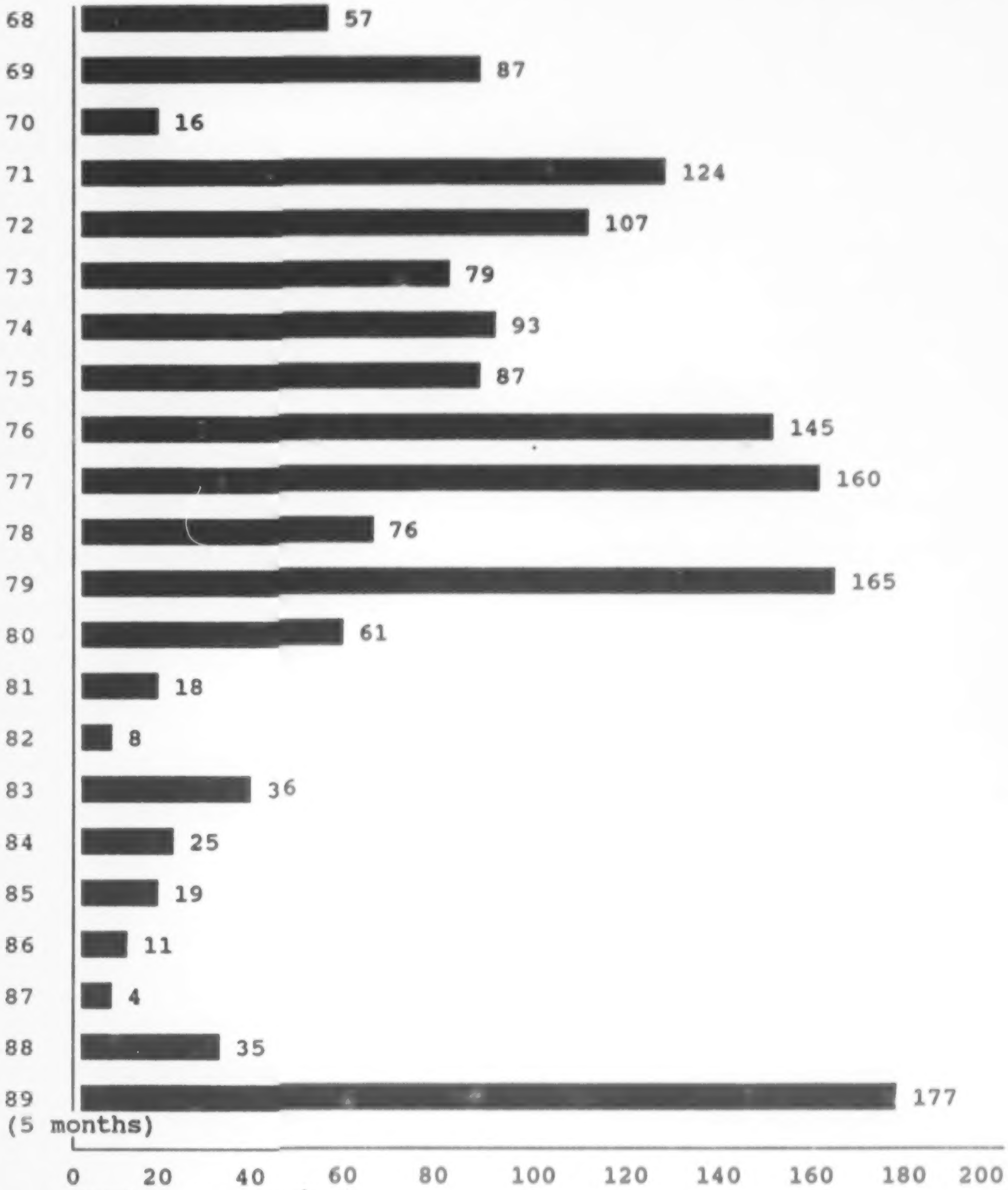
ANALYSIS:

The analysis consisted of two parts. The first part enumerated news stories from 1968[2] (one year before the Santa Barbara well blowout) through May 31, 1989. For purposes of the study, The New York Times has been chosen as the sample for analysis.[3] Stories that appeared between January 1968 and May 1989 in the Times were counted (Figure 1).[4] The second part compared news trends during the 21-year time frame to actual oil spills in the U.S. This analysis attempted to establish whether news coverage rose and fell proportionately to the volume of spilled oil. Figure 2 reports the amount of oil spilled annually in U.S. federal waters from 1970 to 1985.

A close comparison of Figures 1 and 2 showed that news coverage does not necessarily provide the public with complete information about disasters in the U.S. oil industry.

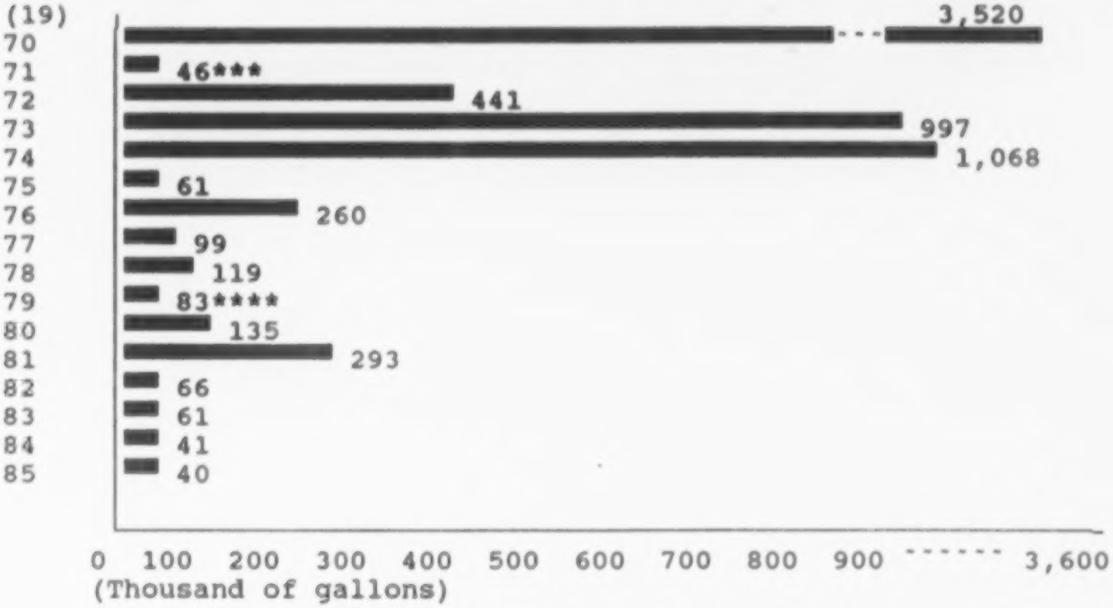
In 1969, the Times concentrated primarily on the Channel-Union Oil spill. Such a focus could be seen from the index's sole subject heading -- "California coast incident" -- for all oil spills. This incident captured absolute news attention and

Figure 1: Number of Stories in The New York Times Index, 1968-89*



Source: The New York Times Index (See Appendix I, Table 1)
* See Footnote 3 for news subject headings.

Figure 2: Oil Spills of 2,100* Gallons or More in Federal Waters, 1970-85**



Source: Federal Offshore Statistics, 1985, Department of Interior (See Appendix I, Table 1)

* The original table was measured with 50 barrels or more. In order to keep a consistent measurement throughout the discussion, barrels have been changed to gallons. One barrel equals 42 U.S. gallons.

** Unfortunately, the offshore statistics were not consistent in the four editions published by the Department of Interior from 1983 to 1985. Therefore, the latest data in 1985 were chosen to construct this figure.

*** The Standard Oil spill did not occur within the federal jurisdiction. Therefore, the estimated spilled oil, 840,000 gallons, was not listed under the 1971 total amount of oil spilled, which was only 46,620 gallons, in the federal waters. (FOS, September 1984) (See Appendix I, Table 1)

**** The total amount of spilled oil offshore, 228,060,000, did not occur in the federal waters, so it was not included in the summary table released by the Department of Interior. (FOS, December 1983) (See Appendix I, Table 1) increased the count of news stories from 57 to 87. In the same year, there were two other disasters in which much more crude oil was leaked, but these were completely ignored by the media. They were a tank rupture (Storage Tank) in New Jersey, which leaked 8.4 million gallons, and a hull failure (Keo) that released 8.8 million gallons off the coast of Massachusetts.[6] The oil leaked in Santa Barbara -- fewer than 4 million gallons[7] -- was not even half of either of these two accidents. However, no reports of the accidents in the Northwest were in the Times during 1969.[8]

Since these two events took place late in the year (November 4 and 5), the following year's reports were examined to determine whether the spills were covered in the beginning of 1970. But no stories were discovered in 1970, either. News attention plummeted drastically one year after Santa Barbara from 87 to 16, and centered around the political consequences and impact of the California coast incident.

Such a lack of media attention was rather unanticipated. The year of 1970 was the first celebration of Earth Day. A national environmental pollution event like the spill at Santa Barbara would be expected to trigger more protest from environmental activists via the media. But apparently this was not the case. The high volume of oil leaked into the Gulf of Mexico in 1970 also was not mentioned at all in the Times.[9]

Disagreements among President Nixon, Congress and the Department of Energy over a large-scale termination of federal leases in the Santa Barbara Channel were the main focus in the Times during 1970. Stories about local citizens' protests and environmentalists' activities in response to the Santa Barbara incident could no longer receive the play like they did in 1969. This perhaps was because the enthusiasm and activism to prevent oil pollution had receded one year after the accident. Consequently media coverage of them diminished.

In short, the Times coverage in 1970 was no more than a follow-up of the Channel-Union Oil spill, and its coverage of oil spills in 1969 and 1970 had been disproportionate to the amounts of oil leaked.

Conversely, 1971 saw the emergence of a vigilant role in the media. While there was a substantial decline in oil pollution due to more rigorous enforcement of safety and operating regulations after Santa Barbara (Federal Offshore Statistics, 1984), news stories of oil spill incidents jumped nearly eightfold in 1971, from 16 to 124. Although the 1971 Times referred only sporadic reports of oil pollution, three major themes were found.

(1) Standard Oil company's Arizona Standard and Oregon Standard collided in San Francisco Bay on January 11. The accident was well publicized, considering the relatively small amount of oil, an estimated 840,000 gallons.[10] (Times, February 14, 1971) The high level of publicity may have occurred because the accident took place in port, where reporters had much easier access, and because San Francisco is tourist area where pollution is regarded as almost intolerable. The spill was then the worst

case in bay history and the first major spill inside a naturally protected harbor. (FOS, 1984) The Times published 18 stories on this event.

(2) There were on-going discussions of new bills for a 5-year moratorium on channel oil exploration and for significant termination of federal leases to oil companies. These initiatives basically were the consequences of the Santa Barbara and San Francisco spills. The two port accidents helped create programs in rehabilitation and treatment of oil-soaked birds. This theme was addressed by 14 stories.

(3) The Esso Gettysburg tanker ran aground in Connecticut in January and spilled 385,000 gallons of oil into the harbor. There were only eight stories about this accident.

After 1971, media attention remained fairly moderate until 1976 and 1977, when coverage peaked again. On December 15, 1976, the Liberian tanker Argo Merchant ran aground off Nantucket Island and leaked 7.7 million gallons of heavy fuel oil. (The World Almanac, 1988) This incident was widely publicized. There were 38 stories in 1976 and 35 in 1977. The Argo Merchant incident constituted more than 25 percent of total oil spill news in 1976 and 1977.

The Nantucket accident not only was on the media agenda, but also received instant political attention. It was a landmark in influence upon public policy regarding oil pollution. The week after the accident, one Senate hearing was held to investigate damage caused by the Argo Merchant, and three reports were requested from the National Oceanic and Atmospheric Administration, the Department of Transportation, and the Department of Commerce. They were delivered in 1977.[11]

This incident and another minor oil spill in Los Angeles harbor[12] on September 18 promoted Congress to tighten the Ports and Waterways Safety Act to protect the nation's ports, waterways, and the marine environment against future oil pollution. (FOS, September 1984) Also, in 1978 an Offshore Oil Pollution Compensation Fund was established to relieve injured parties when an oil spill takes place. The fund is maintained by offshore oil producers. It makes owners and operators of vessels and offshore facilities liable for damages if a seepage results from their negligence.

The count of news reports doubled from 76 to 165 in 1979. This probably was because that the amount of oil leaked in 1979 was the highest ever -- approximately 228,060,000 gallons.[13] The three oil spills happened in this year were among the worst in history. The IxToc I well, drilled by Pemex, spilled an estimated 420,000 to 1,260,000 gallons of oil per day from June 3, 1979 until March 23, 1980, when it was finally capped. The accident released more than 126 million gallons into the Gulf of Mexico, making it the largest oil spill in history. (The New York Times, March 25, 1980; FOS, December 1983) The oil slick reached the Texas coast in early August 1979. That was when US government started to act on the problem. However, unlike the Argo Merchant spill which received immediate political attention, the first Senate hearing on the Campeche incident took place six months after the spill, December 5, 1979.[14]

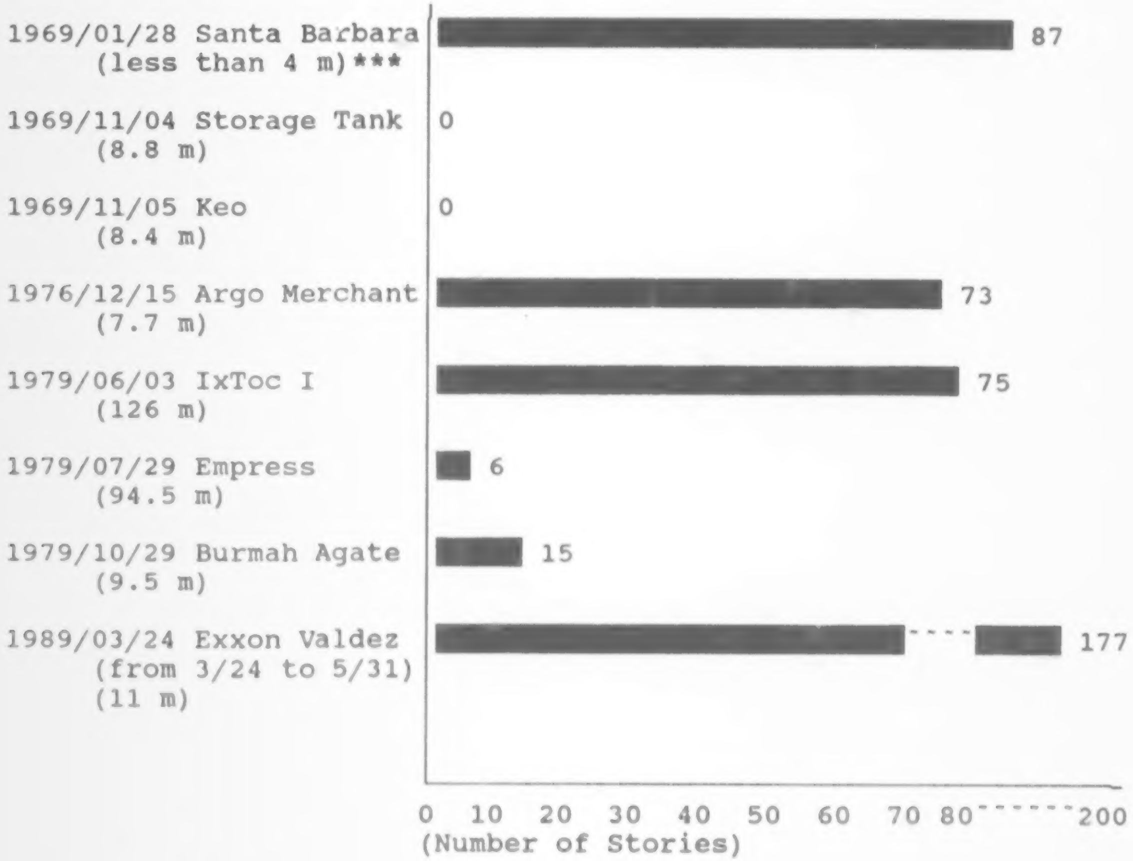
The IxToc I incident also received conspicuous attention from the media. Sixty-eight stories out of 165 in 1979 were about this well blowout in the Gulf. An additional seven stories were reported in 1980.

On July 29, 1979, the Atlantic Empress and the Aegean Captain collided in the Caribbean Sea, about 50 miles northwest of Tobago. The exact amount of the spill was not known, but it was estimated that more than 94.5 million gallons of crude oil leaked into the Atlantic. (_FOS_, September 1984; _FOS_, 1984) In comparison with IxToc I, this incident received scarce attention. Only six stories could be found in 1979.

Toward the end of 1979, two Liberian vessels, the Mimosa and the Burmah Agate, collided about 45 miles from Galveston Bay in Texas. The tanker Burmah Agate caught fire, burned for 70 days, and spilled 9,513,000 gallons of oil into the Gulf of Mexico. The spill contaminated the entire coast of Galveston Island. (_FOS_, September 1984) This spill also received relatively little attention -- 14 stories in 1979 and one in 1980.

Media attention to oil pollution had been minimal from 1980 until Exxon Valdez ran aground in Alaska in 1989, leaking 11 million gallons of oil. This incident received prominent media coverage. Within only five months, 177 stories about the Valdez accident, the highest number of stories related to an oil disaster, appeared.

Figure 3: Number of News Stories* of 6 Major Oil Spills from 1969 to 1985,** and the 1969 Santa Barbara and the 1989 Exxon Valdez Oil Spills



Source: World Almanac, 1988
Federal Offshore Statistics, 1983, September 1984, 1984, and 1985
(See Appendix II, Table 2)

* Except Santa Barbara and Exxon Valdez, news stories of the 6 incidents included the year of accident and the following year.

** The selection of these events was based on the amount of oil pollution listed as the worst and most notable ones in the two publications.

*** Million gallons

Figure 3 illustrates shifts in media attention toward some of the worst and most notable oil spills in the U.S. The Santa Barbara and Exxon Valdez incidents were included to highlight the inequality of media reports. Moderately serious incidents -- Exxon Valdez, Santa Barbara and Argo Merchant -- captured the most prominent media coverage. The most serious incident, IxToc I, received relatively moderate journalistic attention, and the second most serious event, Empress in 1979, received very little coverage.

DISCUSSION:

The analysis above indicates that the public cannot expect their newspapers to give them complete information about oil pollution. Media coverage of oil spills does not correlate positively with the actual amount of oil spilled in the accidents. More oil spilled does not receive more media attention. Instead, the number of oil spill stories was disproportionately distributed. While the Santa Barbara and Exxon Valdez incidents captured extensive coverage, other more severe incidents -- Storage Tank, Keo, and the Atlantic Empress -- were relatively unnoticed. The incident that leaked the most oil in history -- IxToc I -- did obtain substantial news attention, however, compared to the two less serious events in Santa Barbara and Alaska, its coverage was rather secondary.

Regardless of the various sizes of spills, the publicized incidents -- Santa Barbara, Argo Merchant, IxToc, and Burmah

Agate -- shared some common ground. They all took place in the "news-center" states -- California, Massachusetts, and Texas -- where environmental risks have a higher chance of being covered by the media than in other states. (Duerksen, 1983; Greenberg, et al. 1989) This perhaps is one of the reasons why higher media attention has been given to less serious oil spill accidents. In these three states, environmental issues are much more likely to be picked by the media. Also reporters have easier access to environmental incidents because of media penetration in these states.

This geographical factor may explain why a minor incident like the Standard tankers collision in San Francisco Bay gained more news attention in the Times than the 1979 Empress incident in the Caribbean Sea. News availability and reporters' access to the accidents were not as high in the Caribbean as in high news penetration areas like California.

In addition, oil spills in Santa Barbara, San Francisco Bay, and Los Angeles harbor all happened within a visible distance from the coastline. Residents could feel the immediate impacts of oil leaks in their own hometowns. The Union Oil spill happened in one of the best of California's fishing areas (Time, February 21, 1969), where fishermen traveled back and forth and residents actually saw the harbor coated by a massive slick. News photos of slick-covered sailboats and gushing wells along the shoreline perhaps created more impact than pictures of a featureless "black sea" farther out in the ocean. Pictures of volunteers cleaning dying birds are easier to get when oil spills take place close to the shoreline, and they certainly capture the audience's attention. Had the accident taken place farther away from the coast, these pictures probably wouldn't be possible to produce. As a result of the events' locations, the public was disturbed more, and the events created more environmental activities.

For these two incidents, the threat was direct and visible. Thus, the sensational and dramatic facts had more chance of appearing in newspapers than did incidents which happened in a remote area like the Gulf of Mexico or the Caribbean. Also, in the case of Santa Barbara, the conflict between a Presidential Panel's investigation and the public's demands attracted more attention from the media.

The Argo Merchant incident in Massachusetts and the minor Sansinena tank explosion in Los Angeles harbor put pressure on Congress to improve policies to protect the ocean against oil hazards. Because of these two incidents, a compensation fund was created to safeguard the environment from oil spills. Similarly, immediately following the incidents in Santa Barbara and San Francisco Bay in 1969 and 1971, there was a major decrease in federal leases and an increase in rehabilitation programs promoted by environmental groups. In part, geographical reasons decide which incidents are to be covered and which are not.

The massive coverage of the Exxon Valdez affair may have been a result of media convergence upon environmental degradation in 1988 and 1989. Even before the Alaskan desecration there was an on-going trend of media advocacy of environmental awareness. Elite national news magazines like Life and U.S. News & World Report devoted a substantial portion of their first issues of 1989 to environmental destruction due to human activities. Concerns about global climate change and ozone depletion were already on the media and policy agendas when Exxon Valdez occurred. Reports of other environmental hazards such as large-scale deforestation in Brazil, filthy smokestacks in the once clean city of Phoenix, Arizona, and hyperdermic needles and medical waste on New Jersey beaches already had heightened public environmental awareness. Time magazine's selection of our endangered earth for its 1989 "Man of the Year" is testimony of how much the importance of environmental issues had been building long before the Prince William Sound accident.

Themes of environmental protection can be seen in entertainment programs as well as in the news. J.R. Ewing's involvement in an oil spill right after the Exxon tragedy showed how the media could appeal to audience interest by packaging a currently hot topic in a soap-opera. Media hype of environmental issues probably contributed to extensive news reports of the Exxon Valdez accident.

Such "high environmental conscience" constructed by the media apparently has affected the public's perceptions and policy makers's concerns regarding oil exploration. President Bush sent a delegation of high-ranking officials to inspect damage in the face of severe criticism over his Administration's slow response to the Prince William Sound accident. Interior Secretary Manuel Lujan Jr. also warned oil industry leaders that if the accident were not managed with delicacy, public reaction to the Alaska tanker spill could lead to a blocking of future development of oil and gas in other areas. (The New York Times, April 4, 1989)

The third and fourth questions that this study attempted to address were (3) Do more protests produce more media coverage, and (4) Does more media coverage produce wider opposition to oil exploration, or generate policy change? Investigation of the Santa Barbara incident by Nixon's panel suggested new drilling in the Channel to end further leak hazards. This recommendation aroused strong protests among Santa Barbarans. A local citizens organization named GOO -- "Get Oil Out!" -- campaigned against the proposal and sent a petition with 100,000 signatures to the White House demanding termination of offshore oil exploration near Santa Barbara. Their protests forced Nixon to reduce leasing significantly. (Christian Science Monitor, February 19, 1969; Newsweek, June 16, 1969)

Less than one month after the Alaskan shoreline had been desecrated, hosts of radio talk shows across the nation called for a boycott of Exxon products against the company's irresponsible response. (The New York Times, April 17, 1989) More than 40,000 credit cards have been cut up by the company's customers. (Time, March 26, 1990) The protest succeeded in stirring much support from Exxon gasoline card holders and from environmentalists, validating the analysis that more protests gather more media attention, and more media attention promotes wider public opposition to targeted technologies.

FOOTNOTES:

1. Federal Offshore Statistics: Leasing... Exploration... Production... Revenue, December 1983. This source only provides oil incidents in the U.S. Federal waters. In this analysis oil spills in other foreign countries will not be discussed.

2. This year was chosen to see if 1969 had any news boom because of Santa Barbara leak.

3. The New York Times Index is the only form of media that had data available starting from 1968. Other media, such as The Washington Post did not have data of 1968, nor did the Television News Index and Abstracts.

4. The following subheadings appeared in The New York Times Index which varied from year to year for different oil spill incidents for the past 21 years. In order to avoid overlaps, all stories were counted only once if they appeared under different subheadings. In addition, only stories pertaining to oil spills in the U.S. territories are included.

1968: Oil (Petroleum) and Gasoline -- Mexico
Oil (Petroleum) and Gasoline -- United States -- Accidents and Fires, Offshore
Water -- Pollution
1969: Water -- Pollution -- California Coast Incident
1970: Water Pollution -- Calif Coast Incident
1971: Water Pollution -- Oil (Petroleum) and Gasoline
1972: Water Pollution -- Oil (Petroleum) and Gasoline
1973: Water Pollution -- Oil (Petroleum) and Gasoline
1974: Water Pollution -- Oil (Petroleum) and Gasoline
1975: Water Pollution -- Oil (petroleum) and Gasoline
1976: Oil (Petroleum) and Gasoline -- United States -- Accidents and Safety
Water Pollution -- Oil (Petroleum) and Gasoline
1977: Oil (Petroleum) and Gasoline -- United States -- Accidents and Safety
Water Pollution -- Oil (Petroleum) and Gasoline
1978: Water Pollution -- Oil (Petroleum) and Gasoline
1979: Oil (Petroleum) and Gasoline -- United States -- Accidents and Safety
Water Pollution -- Oil (Petroleum) and Gasoline
1980: Oil (Petroleum) and Gasoline -- United States -- Accidents and Safety
Water Pollution -- Oil (Petroleum) and Gasoline
1981: Water Pollution
1982: Water Pollution
1983: Water Pollution
1984: Water Pollution
1985: Water Pollution

1986: Water Pollution
1987: Water Pollution
1988: Water Pollution
1989: Alaska; Exxon Corp.; Exxon Valdez (Tanker); Oil (Petroleum) and Gasoline; Water Pollution; Water -- Pollution

5. The selection was based on the statistics appeared on the Federal Offshore Statistics: Leasing... Exploration... Production... Revenue published by the U.S. Department of the Interior. It was a combined selection from the editions of December 1983, 1984, September 1984, and 1985. (Data prior to December 1983 and after 1985 are not available.)

6. The World Almanac and Book of Facts 1988.

7. There were various estimates of Santa Barbara oil spill. They ranged from 420,000 gallons to 3,234,000 gallons (Federal Offshore Statistics: 1984). Regardless of which statistic is correct, the amount of spilled oil is still much lower than the other two events in 1969.

8. This applies to both 1969 and 1970. In the Times, there was a specific subheading, California Coast Incident, directed to Santa Barbara oil spill in 1969 and 1970. Other possible subheadings related to oil exploration/accidents have also been checked for possible stories, but none was found.

9. The amount of oil seepage in 1970, 3,520,000, was all from the Gulf of Mexico according to the information released by the U.S. Interior Department.

10. The discrepancy of the discussed amount of oil and the listed spilled oil in Figure 2 basically was because that San Francisco Bay accident did not take place within the federal jurisdiction. Therefore, the estimated spilled oil, 840,000 gallons, was not calculated in the 1971 total amount of spilled oil in the federal waters, which was only 46,620 gallons. (FOS, 1983; FOS, September 1984)

    In 1979, the companies who were responsible for the accidents of IxToc I, the Empress, and the Burmah Agate, which released estimated 228 million of gallons of oil, were not on the federal leases. (FOS, December 1983)

11. Oil spill off Nantucket, Massachusetts. Hearing before the Senate Subcommittee on Administrative Practice and Procedure of the Committee on the Judiciary. December 22, 1976.

    "The Argo Merchant oil spill: The preliminary scientific report." NOAA, Washington DC: U.S. Government Printing Office, 1977.

"The Argo Merchant oil spill: On-scene coordinator's report." Boston, MA: Department of Transportation, 1977.

"Summary fact sheet: The Argo Merchant oil spill: A preliminary scientific report." Rockville, MD:Department of Commerce, 1977.

12. A Liberian tanker -- Sansinena -- exploded in Los Angeles harbor. The loss of crude oil was comparatively low, about 12,600 gallons, but it captured public attention because the spill happened in port. (FOS, September 1984)

13. The three accidents discussed in 1979 did not occur in the federal jurisdiction. Therefore the volume of spilled oil was not included in Figure 2, which is based on the summary table of the oil spills in the federal waters.

14. Campeche oil spill. Joint hearing before the Committee on Commerce, Science and Transportation. December 5, 1979.

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Appendix I.

Table 1: Number of News Stories in The New York Times (1968-1989) and Volume of Spilled Oil in the Federal Waters

News Stories (1968-1989)		Oil Spilled (Gallons)	
1968	57	1968	N/A
1969	87	1969	841,344*
1970	16	1970	3,520,566
1971	124	1971	46,620**
1972	107	1972	441,252
1973	79	1973	997,920
1974	93	1974	1,068,186
1975	87	1975	61,320
1976	145	1976	260,316
1977	160	1977	99,834
1978	76	1978	119,196
1979	165	1979	83,664***
1980	61	1980	135,786
1981	18	1981	293,622
1982	8	1982	66,696
1983	36	1983	61,320
1984	26	1984	41,748
1985	19	1985	40,194
1986	11	1986	N/A
1987	4	1987	N/A
1988	35	1988	N/A
1989 (Jan-May)	177	1989	N/A

Source: Federal Offshore Statistics: 1985, the Department of Interior

* Data prior to 1970 were not available. This number was obtained from the summation of the oil spills of 1,000 barrels (42,000 gallons) or more from offshore wells in Federal waters in 1969. They were Santa Barbara Channel (10,000 barrels), Main Pass (7,532 barrels) and Ship Shoal (2,500 barrels). The total spillage was 20,032 barrels (841,344 gallons). Since there were other incidents that leaked less than 1,000 barrels, the actual total seepage was expected to be higher in 1969.

The other two incidents in 1969, Storage Tank in New Jersey and Keo off Massachusetts were not included in this statistic.

** The Standard Oil spill, which leaked 840,000 gallons, did not happen within the fedral jurisdiction. Therefore it was not calculated in the 1971 total amount of oil spilled in the federal waters which was only 46,620 gallons. (FOS, September 1984)

*** The companies who are responsbile for the estimated 228 million gallons of spilled oil were not on the federal leases. (FOS, December 1983) Accordingly, this number was not included in the 1979 summary table of oil spills in the federal waters.

Appendix II.

Table 2: Spilled Oil and Number of Stories of 7 Major Incidents from 1969 to 1985*, and the 1969 Santa Barbara and the 1989 Exxon Valdez Oil Spills

Date	Event	Gallons** (Million)	Number of Stories		
1969/01/28	Santa Barbara	<4.0 m	1969: 87		
1969/11/04	Storage Tank	8.8 m	1969: 0	1970: 0	Total: 0
1969/11/05	Keo	8.4 m	1969: 0	1970: 0	Total: 0
1976/12/15	Argo Merchant	7.7 m	1976: 38	1977: 35	Total:73
1979/06/03	IxToc I	126 m	1979: 68	1980: 7	Total:75
1979/07/29	Empress	94.5 m	1979: 6	1980: 0	Total: 6
1979/10/29	Burmah Agate	9.5 m	1979: 14	1980: 1	Total:15
1984/07/30	Alvenus	3.1 m	1984: 12	1985: 0	Total:12
1989/03/24	Exxon Valdez	11 m	03/24/89 - 05/31/89: 177		

Sources: The World Almanac and Book of Facts 1988
The Federal Offshore Statistics: Leasing... Exploration... Production... Revenue, December 1983, September 1984, 1984, and 1985.

* The selection of these events was based on the degree of damage listed as the worst and notable ones in these two publications.

** Some of the volume of oil spilled has been converted from long tons or barrels to gallons in order to keep a consistent measurement. One long ton approximately equals 7.5 gallons, one barrel equals 42 gallons.

IDEOLOGY AND THE ENVIRONMENT: U.S. MEDIA AND DEFORESTATION IN BRAZILIAN AMAZONIA

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ABSTRACT

IDEOLOGY AND THE ENVIRONMENT: U.S. MEDIA AND DEFORESTATION IN BRAZILIAN AMAZONIA

This study examines the issues of ideological content of the news and of crisis orientation in press coverage of the environment and the Third World. These issues arise in the case of the Brazilian Amazon, where an ongoing process of environmental degradation was recently punctuated by the murder of local activist Francisco Mendes. We address the following questions in the context of these events: 1. were varied theories of Third World environmental degradation presented in coverage of Amazonian deforestation in major U.S. daily newspapers; 2. was discussion of different models of deforestation related to the choice of news sources; 3. did models of deforestation presented in this coverage change in the aftermath of the murder; and 4. whether the amount of coverage of Amazonian deforestation changed in the aftermath of a crisis -- the Mendes murder.

We content analyzed a census of the articles on deforestation in Brazilian Amazonia published in the Los Angeles Times, The New York Times and The Washington Post during a two-year period. The time frame for the study was 1988 and 1989 -- one year before and after the Mendes murder. A total of 86 stories were coded for variables including theoretical models of deforestation, sources, and story type and length.

The stories were found to represent a diversity of viewpoints, with six of seven theoretical explanations well represented in the coverage. The most frequently cited theories included Brazilian internal policy, Malthusian population pressure and international economic factors (dependency). Journalists used a wide range of sources covering this topic, possibly accounting for the range of viewpoints represented. While few changes were found in the ideological orientation of the stories after the murder, the quantity of coverage rose sharply in its aftermath, before declining in late 1989.

The politicians. . . rock stars and filmmakers rush south to Brazil
just as two years ago they rushed east to Ethiopia.
Now there are concerts and fundraisers for the forest,as previously
for the starving. The interest attains the thunder and velocity
of an avalanche, but alas, an avalanche that drops into the void
between solicitude and political reality.

Hecht & Cockburn (1989a, p.696)

INTRODUCTION TO THE PROBLEM AND LITERATURE

Events in the forests of Brazil have afforded a recent opportunity to assess the role of the American press in the "rush" to cover environmental crises in the Third World. In fact, they have afforded the opportunity to assess the coverage of each element of that topic: "environment," "crises" and the "Third World." This study uses the example of forest destruction in the Brazilian Amazon to examine American press coverage of environmental issues in the Third World. Further, we use the example of the murder of local activist Francisco (Chico) Mendes to measure the impact of a "crisis event" on that coverage.

Past research (cited below) has suggested that issues of environmental degradation are generally neglected by the news media, except when short-term (as opposed to time-transgressive) crises occur. Similarly, research on news media and the Third World has shown coverage to be scanty, and largely devoted to crisis reporting. These combined trends suggest that press attention to environmental degredation in the Third World is likely to be limited indeed, except in response to distinct crises.

The role of the press in reporting on Third World environmental issues cannot, however, be encapsulated in the simple measure of amount of coverage. Does the media's interest result in coverage that explains, or that falls into the void cited by Hecht and Cockburn at the beginning of this page? A direct answer to this question would involve theoretical arguments (and underlying ideological arguments) about the different models that have been used to explain Third World environmental degradation, and specifically deforestation. While it is not our intent to enter these arguments here, it is necessary to recognize that they exist. As soon as the press starts to explain the phenomenon (in this instance) of Amazonian deforestation, it is entering this argument, whether knowingly or not. And, as Lowe and Morrison (1984, p. 79) suggest, because there is no conventional wisdom regarding the cause of environmental problems, there is greater "scope for unconventional views to prevail." Thus it is of prime interest in this study to examine not only the amount of coverage of Amazonian deforestation, but also the content, assessing the theoretical/ideological portrayal by the press. Both quantity and content, in turn, can then be studied for the response to a crisis event.

The remainder of this section presents a brief background discussion of the literature relating to press coverage and the Third World, and of the current situation in the Amazon and the theoretical models that have been applied to it. This background allows the enumeration at the end of the section of the specific objectives of the study.

Press Coverage

The Environment. A number of authors have asserted that the press has historically done an unsatisfactory job of covering environmental issues, and they have suggested a variety of reasons. For example, according to Rubin and Sachs (1973), since news media define news according to a specific event or peg, relatively "invisible" occurrences such as environmental degradation are left uncovered. Schoenfeld, Meier and Griffin (1979) agree, stating that most environmental degradation is unlikely to be linked to (1) an unusual (2) event, (3) occurring in the past 24 hours -- all three of these being common criteria for news. As they (Schoenfeld, Meier & Griffin 1979, p. 50) state, "The naturally slow process of environmental degradation was simply out of phase with the day-by-day frame of the press." Conversely, events such as the Exxon Valdez oil spill or staged events like protests do fit into this newsgathering framework and are therefore covered by the media (Friedman, 1986a). According to Hertsgaard (1990, p. 16), however, "Pegging news coverage only to events means that reporters don't arrive on the scene until after the damage is done."

Environmental reporters agree that their work frequently plays second fiddle to that done on other beats. David Goeller, who formerly covered environmental issues for the AP, argued the point: "Particularly in Washington the big beats are the White House, the State Department, the Pentagon. . . I think the greenhouse effect and CFCs are a hell of a lot more important to the future of the world than the U.S. budget deficit" (Hertsgaard, 1990, p. 15).

One indicator of this relative lack of attention to the environment by the news media is the slow assignment of reporters to the "environmental beat." For example, although CNN has an eight-member environmental crew, ABC named its first two environmental reporters in 1990 and CBS and NBC have no full-time environmental reporters. One reason for this may be that coverage of the environment defies routinization (Schoenfeld, Meier & Griffin, 1979). It is thus difficult to assign a specialist because covering the environment may include business, medical, economic, social and political components. Further, covering the environment, like other science, may entail in-depth reporting, and editors may be unwilling to allow their reporters the time and flexibility such reporting requires (Goodell, 1986).

Journalist source relationships may be another reason why coverage of the environment has been limited. General assignment reporters tend to rely on only one or two sources when covering science-related issues, and exhibit general ignorance about where to go for information on these topics (Friedman, 1986a). Journalists are also more likely to turn to social scientists as sources than to other types of scientists (Dunwoody, 1986), and are more likely to rely on sources who have " obvious credentials and well-established credibility" (Goodell, 1986). According to Dunwoody, one criterion of credibility is previous media visibility, and as Goodell (p. 177) points out, "With a peculiar kind of chauvinism, scientists and science reporters have frequently assumed that the views of scientists on scientific issues are definitive, and that the views of lay participants, such as environmentalists. . . are somehow inferior or extraneous." The result of this shared culture between journalists and their sources (Dunwoody, 1986) may be reporting that while efficient, is also limited in the degree of diversity of perspective it offers. The stories written by a reporter will tend to be about the topics of interest to his or her favored scientific source, and to reflect the viewpoints of that source as well.

While a number of studies have examined media coverage of environmental issues (e.g. Schoenfeld, Meier & Griffin, 1979; Liebler & Thompson, 1984; Lowe & Morrison, 1984; Strodthoff, Hawkins & Schoenfeld, 1985; Cunnigham, 1986; Friedman, 1986b;), only one has specifically assessed coverage of the destruction of tropical rain forests. Lundburg (1984) content analyzed eight feature length consumer magazine articles published 1980-1983 and found that causes of deforestation were covered more comprehensively than its background, effects and solutions. Yet, her statement "that the causes of deforestation are clear cut and well covered by the magazines implies that the causes are well understood and identified by both science researchers and authors of popular science articles" (p. 380) reflects the shallowness of the analysis -- her statement is difficult to defend in view of the literature on deforestation discussed below.

The Third World. While the American press has been criticized for its lack of foreign news (e.g. Emery,1989), the news from the Third World that it does provide has been widely criticized for its tendency to rely on disasters and other crises. For example, Rosenblum (1970) argues that media coverage of the Third World is slanted toward negative news. Weaver and Wilhoit (1981) content analyzed wire service stories from less developed nations in 1979 and found that a significantly higher percentage of them focused on crisis and conflict, compared to stories from developed nations.

Stevenson and Gaddy (1984) report similar findings in their analysis of news media from around the world. For example, they report that the Third World gets more coverage of bad news than other types, although natural disasters in the Third World are less likely to be covered than those in the First and Second Worlds. More recently, Potter (1987) found that 57.4 percent of coverage of the Third World by the Western prestige press was "sensationalistic."

There is a particular dearth of media attention to the often complex topic of development in the Third World. Ogan (1987) points out that confusion exists as to what constitutes development news (which may help to explain the paucity of coverage), but asserts that a consensus exists among media and development scholars that coverage of development issues is limited. In her analysis of coverage of a single development issue (the 1984 U.N. International Conference on Population), Ogan found that media from developed countries emphasized political aspects of the story, including U.S. declarations about abortion and U.S.-Soviet differences, rather than the development issue (population).

Amazonian Deforestation

The geographic scope of this study is limited to the Brazilian portion of Amazonia. While Brazil is just one of several countries with territory drained by the Amazon river and its tributaries, it is the certainly the largest. With 2,860,000 km^2 of what is popularly referred to as tropical rainforest, Brazil was estimated in 1980 to have three times more of this forest type than any other country in the world (Myers, 1980). Limitation of the analysis to one country also allows inclusion of theories that are nation-specific in the study.

The Scope and Significance of Degradation. The deforestation of the Brazilian Amazon is proceding at a rapid pace. Hecht and Cockburn (1989b) estimate that the forest is now 8 to 10 percent smaller than a century ago, other estimates have ranged from five percent to 20 percent or more. These discrepancies result from the variety of sources from which data are derived (mostly remotely sensed data from satellites), and the sometimes ambiguous nature of those data.

Of greater, concern, however, is the rate at which deforestation is occurring. Most estimates suggest that in the past two decades the rate of clearing has increased exponentially. One such study found an exponential increase in deforestation in the Brazilian state of Rondônia between 1975 and 1985; if unchanged, this will result in the eradication of the forest there by about the year 2000 (Malingreau & Tucker, 1988). Environmental degradation has not been limited to clearing, the Brazilian Amazon is also seeing increasing levels of water pollution, especially by mercury, which is widely used in gold mining (Hecht & Cockburn, 1989b).

Several factors combine to make the loss of the Amazonian forests a matter of international concern. There are a variety of ways in which substantial deforestation in Amazonia could change climate patterns both locally and worldwide (Myers, 1979; Salati & Vose, 1984). The region is also thought to be one of the most biologically diverse on earth, with a large portion of the plant and animal species found on earth (Hecht & Cockburn, 1989b). Many of these species occur in limited areas within the forest, so that thousands of species with potential economic and medicinal uses are being pushed to extinction by deforestation -- many before they have been identified, let alone studied (Schultes, 1979; Balick, 1985).

The loss of forest is probably permanent. Specialized reproductive strategies and easily degraded soils generally prevent this type of forest from recolonizing large areas once they have been cleared (Gómez-Pompa, Vásquez-Yanes & Guevara, 1972; Herrera *et al.*, 1978).

Explanatory Models. It is one thing to recognize the existence of the problem of deforestation, it is yet another to explain it. Among those observing environmental degradation in Amazonia (and elsewhere in the Third World), there is no consensus as to the causes. As a consequence, if the media do report on deforestation, and seek to provide any simple explanation for it, then they are taking sides, whether wittingly or not, in an ongoing debate. The media consumers among the general public, in turn, are rarely informed that these explanations are actually contested theories.

Seven general theoretical views can be identified regarding the causes of deforestation in Amazonia. Some of these have been developed to explain environmental degradation in the Third World in general, others are specific to the Brazilian Amazon. These theories are reviewed only briefly here, but have been discussed at length elsewhere (e.g. Hecht, 1985).

One broad theoretical approach, commonly referred to as "Malthusian" or "neo-Malthusian," emphasizes the pressure exerted by increasing population, which forces migration into previously unspoiled forest, or destructive agricultural practices on land already occupied. Such pressures have been cited in the Amazonian instance by, among others, Câmara (1983).

A second view is that of the "Tragedy of the Commons," first suggested by Hardin (1968). According to this model, environmental degradation occurs because individuals have no incentive to preserve public land -- if they exploit it they can keep all of the profits, while sharing the environmental costs with the rest of the public. The logical root of the problem, according to this view, is the existence of public lands, since private landowners would be motivated to preserve their property.

The third explanation invokes the role of environmental "externalities." Here the issue is again economic: since many environmental costs do not appear (surficially, at least) as economic costs, they are ignored in planning economic development, and environmental degradation ensues. As Redclift (1984, p. 22) describes it, "Since we do not possess a tangible means of weighing the environmental costs. . . the negative aspects of these processes can easily be ignored."

A fourth explanation draws on the concept of "dependency," which appears widely in development literature. In its environmental application, this model explains environmental degradation as a consequence of intervention by international forces. Such intervention may be through market forces encourageing the growth of inappropriate crops or the reckless harvesting of forest and mineral resources; or it may be through the transfer of technologies through trade or foriegn aid that are ill-suited to the preservation of tropical environments. According to this view "The temperate zone countries have said to the tropics 'Look at all the nice cash crops you can grow for us to buy,' but have neglected to teach the tropics at the same time how to preserve the natural capital. . ." (Janzen, 1973).

Fifth in our arbitrarily ordered list of explanations is the invocation of "inappropriate technologies." This approach simply explains environmental degradation as a result of mistaken choices in agricultural (or other) technology, such as too-short fallow periods between crops, or the use of damaging pesticides. It is important to note that all of the other theories discussed here also incorporate the negative impacts of inappropriate technological applications -- what distinguishes this view is that these technologies are seen as the problem itself, rather than as symptoms of underlying social or economic causes. This approach, not surprisingly, has generated literature devoted to technological solutions to these technological problems (*e.g.* Sanchez *et al.*, 1982; Sanchez & Benites, 1987).

Finally, Hecht (1985) has proposed an explanation that actually comprises two related causes that are specific to the Brazilian Amazon, as oppposed to general explanations of tropical deforestation. One of these, the sixth in our list, is that environmental degradation has been spurred by government policies (referred to henceforth as "internal policies"), such as tax subsidies for cattle ranches. These policies are responses to political machinations within Brazil and the traditional national concern with ensuring the territorial claim to Amazonia through its occupation and use.

The other of Hecht's elements, our seventh, is simply "land speculation." As a result of combined policy factors and unintended economic fluctuations, the value of land in the Brazilian Amazon has skyrocketed, so that speculative returns on land ownership can actually exceed the productive return from the land's use. Consequently, for the land speculator, conserving the productive potential of the land is largely irrelevant, while clearing the land may help to solidify ownership claims.

While there may well be aspects of the Amazonian situation that suggest the some of these seven theories ahead of others, it is not our purpose here to critique their relative merits. It is, however, important to recognize that this range of possible explanations exists (in contrast to Lundburg's contention quoted above), and that any news report on the causes of Amazonian deforestation must therefore choose from among them.

The Murder of Chico Mendes. On December 22nd, 1988, a "crisis" event occurred in the course of Amazonian deforestation. That night, gunmen shot and killed Francisco (Chico) Mendes, a local labor leader in Acre State who had gained an international reputation as a defender of the Amazonian environment. His union was of rubber tappers, individuals who make their livelihood in the uncut forest by gathering latex from wild rubber trees, as well as collecting brazil nuts and other forest "products." This group had organized to protest the destruction of the forest in which they lived and worked, which was being cleared for the establishment of large cattle ranches.

The murder of Mendes, at the apparent behest of ranchers, was not in itself a crisis -- others in his movement had died before him. In this instance, however, the victim was one with an international reputation. His efforts had been supported by North American groups including the Environmental Defense Fund and the World Wildlife Fund, and he had been honored by the United Nations as one of the Global 500, an international citation for protection of the environment. Because of this international reputation, his murder did constitute a major event, or crisis. This, in turn, provided an example of how press coverage of an ongoing environmental story in the Third World responds to crises.

Objectives of the Study

The specific objectives of this study are as follows:

1. To determine the degree to which different theories of Third World environmental degradation are presented in coverage of Amazonian deforestation in major U.S. daily newspapers.

2. To determine the extent to which discussion of different models of deforestation is related to the choice of news sources.

3. To determine whether the models of deforestation presented in this coverage changed in the aftermath of the murder.

4. To determine whether the amount of coverage of Amazonian deforestation changed in the aftermath of a crisis -- the Mendes murder.

METHODS

The time frame for this study is 1988 to 1989, thereby encompassing one year each before and after Mendes' murder. The newspapers analyzed were the Los Angeles Times, The New York Times and The Washington Post. These papers were chosen because they circulate nationally and represent the "elite" press in the United States. Each paper consequently serves as an agenda setter for government officials and other media around the country, the latter most explicitly through news services. We wanted to assess to what extent these agenda setters provided balanced and diversified coverage of alternative explanations of Brazilian deforestation, which would then be passed on to a variety of media outlets and eventually to the American public and policymakers.

News articles were chosen from the 1988 and 1989 indices of each newspaper. Key terms used to identify relevant articles, while varying slightly from one index to another, were environment, forests and forestry, rainforests, Brazil, and Mendes. Only articles that explicitly referred to Brazil were included in the study. This sampling resulted in a total of 86 news stories about Mendes and issues and events surrounding the deforestation of the Brazilian Amazon. Thus, coded articles represent a census of all articles on this topic during this two year period. The distribution by newspaper and year is provided in Table 1.

Each article was coded for newspaper, year, number of paragraphs, story type, news peg, news source(s) affiliation(s) and theoretical explanation(s) for deforestation. Each theoretical explanation that appeared in a story was coded, so a story could have more than one theory assigned it. However, if the same theory appeared more than once, it was only coded once -- we were interested in the presence or absence of each explanation. Similarly, each source who was attributed in a story was coded for his/her affiliation. Sample affiliations are U.S. or Brazilian government, environmental group, and scientist. A more detailed explanation of the coding scheme is provided in the Appendix.

A random sample pretest was conducted on 14 percent of the articles (n=12). Coder reliablity was established between two coders using Holsti's formula for intercoder agreement (Budd, Thorp & Donohew, 1967, p.68). Reliablity ranged from .83 to .87 for conceptual categorizations (peg, affiliation and theory) and from .83 to 1.00 for simple identification (newspaper, year, paragraphs). The .83 reported in the latter instance was a simple counting error caused by an illegible photocopy.

RESULTS AND DISCUSSION

Most of the stories analyzed (80.2 percent) included at least one of the theoretical explanations for environmental degradation in the Brazilian Amazon, and 23.3 percent provided more than one. Although the theories varied in frequency of occurrence, only externalities failed to appear more than once. As shown in Table 2, the most common explanation provided was Brazilian internal policy, cited in 38.4 percent of the stories. Other explanations appearing frequently were the Malthusian model and Dependency theory.

It is interesting to note that coverage did not avoid the potentially controversial explanations for deforestation. The two most common explanations found in the stories were internal policy (38.4 percent), with its implied (or explicit) criticism of the Brazilian government, and dependency (19.8 percent), with its implied criticism of international economic relationships. Conversely, the most "innocuous" explanation, that of inappropriate technology, appeared in only 8.1 percent of the stories. While these newspapers are not explaining that disagreement exists over the causes of deforestation, neither are they presenting a one-sided view.

The view is apparently somewhat different from the editorial page. Table 3 reveals that while 55.6% of the entries from the op-ed pages discussed the role of internal policy, only 11.1 percent of op-ed pieces mentioned dependency -- compared to 22.1 percent of the news stories. This suggests that for writers of editorials, columns and letters some aspects of the news are more attractive to follow up on than others. And that the Brazilian government is a more attractive target than international companies and lending institutions. All of the explanations except externalities do appear at least once in each story type, however.

The impressive range of explanations provided does suggest that the concern for diversity of perspective (see page 3, above) is not relevant in this case. This may be because that concern was predicated on an assumption that few sources would be used for an environmental story. The stories on Amazonia used a broad range of sources, as shown in Table 4. Although these varied sources presumably contibute to the variety of explanations mentioned in the stories, the relationship is difficult to establish. The causes of deforestation were often mentioned in passing as part of the background for the story, without any attribution. In fact, no source types were strongly linked in their pattern of occurrence with specific explanatory models. Table 5 shows the percent of the stories in which each source type appeared along with with each model. While even a strong co-occurrence between a source type and a model would not prove causation, the absence of such coincidence in the table suggests a lack of simple source-model links.

One possible explanation for the absence of such a link is the persistence of individuals on the "Amazon beat." One reporter wrote 11 of The New York Times' 50 stories, for example, while another wrote 5 out of 14 for the Los Angeles Times. As an individual produces multiple stories, his/her background understanding will come to reflect the input for all of the stories, rather than just the information gathered for the current effort. Thus a reporter who interviewed a persuasive advocate of Malthusian theory in February may include population pressure in the background of a July story, without mention of the original source.

Some differences in the explanations provided for the deforestation can be seen between1988 and 1989, as exhibited in Table 6. While internal policy remained a commonly listed cause, it dropped from appearing in 63.4 percent of the stories in published in 1988, to only 29.7 percent in 1989. Malthusian and Dependency models continued to be cited in 1989 as in 1988, while Tragedy of the Commons increased in frequency of appearance from not appearing at all in 1988, to being cited in 15.6 of the articles published in 1989. No reason for these changes is apparent from the available data, and they do not appear to be connected to the Mendes murder.

As was seen in Table 1, nearly three times as many articles were published on the Brazilian Amazon in 1989 as in 1988. However, it is interesting to note that the mean length of these articles did not increase significantly between the two time periods. Articles averaged 15.3 paragraphs in length in 1988, and only increased by one to 16.8 in 1989. So, although more articles were written, they did not necessarily offer more depth. The increase in coverage is apparently in response to the Mendes murder. The murder and its aftermath account for 24.4 percent of all articles published. His death did seemingly help spur more issue-oriented and event pegged stories, as both types of stories increased in 1989 following his murder. In 1988, the three papers ran only 6 issue oriented stories and 9 event pegged stories. These numbers increased to 24 and 25 respectively in 1989. More op-ed pieces on deforestation appeared in 1989 (13) than 1988 (5), as well. Most of this coverage, however, occurred soon after the murder (see Figure 1). By the end of 1989, the coverage appeared to be tapering off, despite flurries of activity such as in April, 1989, when two U.S. congressional groups visited the area.

It is, of course, difficult to determine the extent to which the Mendes murder triggered this increased coverage. Several stories in 1989 were tied to congressional fact-finding tours to the region, although those trips were arguably part of the response to the murder. And the overall amount of environmental reporting in the papers was increasing at the same time -- stories indexed under "environment" increased by 40 percent in The New York Times from 1988 to 1989, and by 229 percent in the Los Angeles Times (The Washington Post changed keywords during this period, preventing comparison for that paper). These increases are deceptive, however, as the bulk of the extra stories were directly or indirectly related to the Exxon Valdez oil spill, rather than an overall increase in environmental coverage.

CONCLUSIONS

The findings of this study suggest that the U.S. press coverage of Amazonian deforestation is neither empty of ideology nor ideologically biased. Instead, a curious situation prevails in which a number of rival theories are presented, often in the same stories, without mention of the rivalry. In some instances, this may represent a common-sense recognition that more than one cause may be at work. It would be naive, however, to believe that all of these models could "co-exist." The Tragedy of the Commons and land speculation, for example, can hardly be occurring in the same place at the same time (one is only applicable to public lands, the other to private). At any rate, the press is apparently attending to a sufficient variety of sources to present in some manner most of the current ideas about why deforestation is occurring.

Our data also suggest that the untimely death of Chico Mendes resulted in a substantial increase in press coverage of the Amazonian situation. This does provide some confirmation for those critics who assert that press coverage of the environment, and of the Third World, responds mainly to crises and bad news. Such criticism may draw more fuel from the fact that several of the 1989 stories were actually centered on the bidding war for the film rights to Mendes' martyrdom. In view of the subsequent decline in coverage (Figure 1), it remains to be seen whether the newfound interest in the Amazonian environment will be maintained when the sound of gunshots gives way to the noise of chainsaws and bulldozers.

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TABLE 1

NUMBER OF STORIES PRINTED IN EACH NEWSPAPER IN 1988 AND 1989

	YEAR	
NEWSPAPER	1988	1989
Los Angeles Times	2	12
The New York Times	12	38
The Washington Post	8	14
TOTAL	22	64

TABLE 2

NUMBER AND PERCENT OF STORIES THAT INCLUDED EACH THEORETICAL MODEL

MODEL	NUMBER OF STORIES	PERCENT OF STORIES[3]
Malthusian	17	19.8
Tragedy of the Commons	10	11.6
Externalities	1	1.2
Dependency	17	19.8
Inappropriate Technology	7	8.1
Internal Policy	33	38.4
Land Speculation	7	8.1
no model included	17	19.8

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[1] Percentages do not total to 100 because more than one model could appear in a given story.

TABLE 3

NUMBER AND PERCENT OF STORIES THAT INCLUDED EACH THEORETICAL MODEL, BY STORY TYPE

	NEWS[1]		OP-ED[2]	
MODEL	# OF STORIES	(%)[3]	# OF STORIES	(%)[3]
Malthusian	11	(16.2)	6	(33.3)
Tragedy of the Commons	9	(13.2)	1	(5.6)
Externalities	1	(1.5)	0	(0.0)
Dependency	15	(22.1)	2	(11.1)
Inappropriate Technology	6	(8.8)	1	(5.6)
Internal Policy	23	(33.8)	10	(55.6)
Land Speculation	6	(8.8)	1	(5.6)
no model included	13	(19.1)	4	(22.2)

[1] N = 68 stories.

[2] N = 18 stories.

[3] Percentages do not total to 100 because more than one model could appear in a given story.

TABLE 4

TOTAL NUMBER OF TIMES EACH SOURCE TYPE WAS ATTRIBUTED, AND PERCENT OF TOTAL STORIES IN WHICH EACH SOURCE TYPE WAS ATTRIBUTED

SOURCE TYPE	# OF TIMES ATTRIBUTED[1]	% OF TOTAL STORIES[2]
U.S. Administrative	1	0.01
U.S. Legislative	18	12.8
U.S. Environmental	21	12.8
U.S. Scientist	32	26.7
Other U.S.	18	12.8
Brazilian Administrative	96	51.2
Brazilian Legislative	11	11.6
Brazilian Indigenous	9	9.3
Brazilian Scientist	21	17.4
Brazilian Environmentalist	8	8.1
Tappers	19	13.9
Other Brazilian	48	33.7
International Lending Agency	10	10.5
Other Environmentalist	7	5.8
Other Scientist	16	17.4
Other	15	15.1

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[1] Each type of source could appear more than once per story.

[2] Percentages do not total to 100 because more than one source could occur in a given story.

TABLE 5

PERCENT OF ALL STORIES IN WHICH EACH COMBINATION OF SOURCE TYPE AND THEORETICAL MODEL OCCURRED

	MODEL						
SOURCE TYPE	MALTHUSIAN	COMMONS	EXTERNALITIES	DEPENDENCY	TECH.	POLICY	SPEC.
U.S. Admin.	1.2	1.2	0.0	0.0	0.0	1.2	0.0
U.S. Legis.	4.7	0.0	0.0	3.5	1.2	1.2	0.0
U.S. Envir.	2.3	0.0	0.0	7.0	0.0	4.7	1.2
U.S. Scientist	5.8	3.5	0.0	5.8	2.3	10.3	3.5
Other U.S.	0.0	2.3	0.0	2.3	2.3	0.0	0.0
Br. Admin.	17.4	3.5	1.2	5.8	4.7	25.6	4.7
Br. Legis.	2.3	0.0	1.2	1.2	1.2	8.1	0.0
Br. Indig.	2.3	1.2	0.0	0.0	1.2	5.8	0.0
Br. Scientist	7.0	0.0	1.2	1.2	1.2	12.8	3.5
Br. Envir.	2.3	1.2	0.0	0.0	1.2	3.5	0.0
Tappers	2.3	1.2	0.0	4.7	1.2	2.3	3.5
Other Br.	12.8	5.8	0.0	5.8	2.3	11.6	1.2
Int'l Lender	3.5	0.0	0.0	2.3	1.2	8.1	2.3
Other Envir.	1.2	0.0	0.0	3.5	0.0	3.5	0.0
Other Sci.	3.5	0.0	0.0	4.7	1.2	8.1	4.7
Other	0.0	2.3	0.0	4.7	1.2	4.7	1.2

TABLE 6

NUMBER AND PERCENT OF STORIES THAT INCLUDED EACH THEORETICAL MODEL, BY YEAR

	1988[1]		1989[2]	
MODEL	# OF STORIES	(% OF 1988)[3]	# Of STORIES	(% OF 1989)[3]
Malthusian	5	(22.7)	12	(18.8)
Tragedy of the Commons	0	(0.0)	10	(15.6)
Externalities	0	(0.0)	1	(1.6)
Dependency	5	(22.7)	12	(18.8)
Inappropriate Technology	1	(4.6)	6	(9.4)
Internal Policy	14	(63.4)	19	(29.7)
Land Speculation	1	(4.6)	6	(9.4)
no model included	3	(13.6)	14	(21.9)

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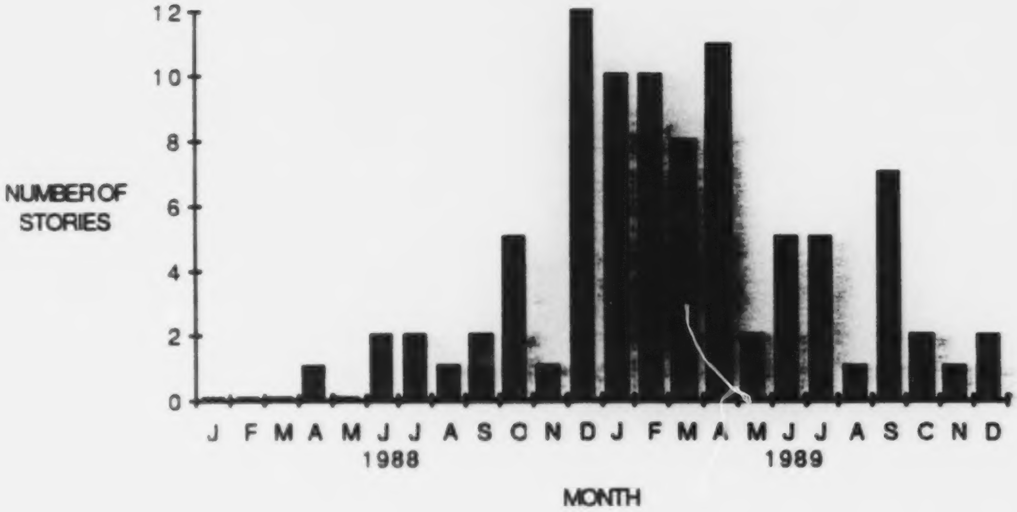
[1] N = 22 stories.

[2] N = 64 stories.

[3] Percentages do not total to 100 because more than one model could appear in a given story.

FIGURE 1: STORIES BY MONTH, 1988-1989



APPENDIX: CODING SCHEME

ID # = number applied to story when photocopied

Paper 1 = L.A. Times; 2 = New York Times; 3 = Washington Post

Year 1 = 1988; 2 = 1989

Month = 1-12 (1 = Jan, 2 = Feb, *etc.*)

Grafs = number of paragraphs in the story

Story Type
1 = news story
2 = op/ed

News Peg
1 = issue of deforestation
2 = non-crisis event related to deforestation (*e.g.* news conference)
3 = Mendes murder and aftermath (arrests, *etc.*)
4 = other (specify)

Source Affiliations (code for all that are mentioned)
1 = U.S. Gov't, administrative branch (not including scientists)
2 = U.S. Gov't, legislative branch (including legislators' employees; not including scientists)
3 = members of U.S. environmental groups (not including scientists)
4 = U.S. scientists
5 = other U.S. sources
6 = Brazilian Gov't, administrative branch (not including scientists)
7 = Brazilian Gov't, legislative branch (including legislators' employees; not including scientists)
8 = Brazilian indigenous peoples
9 = Brazilian scientists
10 = members of Brazilian environmental groups (not including scientists)
11 = rubber tappers
12 = other Brazilian sources
13 = employees of international lending institutions
14 = members of other environmental groups (not including scientists)
15 = other scientists
16 = other sources (specify)

Explanatory Models (code for all that are mentioned)
1 = Malthusian (anything related to population pressure, whether for land or food)
2 = Tragedy of Commons (irresponsible use of unregulated public land/resources)
3 = Externalities (environmental impacts are ignored because they do not translate into economic costs -- thus a call for taxing abusers would be reference to this)
4 = Dependency (degradation due to international economic factors, such as project funding from abroad, or export-oriented agriculture)
5 = Inappropriate technology (degradation resulting from "environmentally incorrect" techniques or choices, but not due to any of the other models or other underlying causes)
6 = Internal Policy (degradation due to Brazilian Gov't policy, such as tax incentives or projects to establish sovereignty in the region)
7 = Land Speculation (identified as speculation or as hedge against inflation)
8 = no cause mentioned

Appendix 16

END

U.S. Dept. of Education

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ERIC

Date Filmed

March 21,1991